The Iron Age

A Review of the Hardware and Metal Trades.

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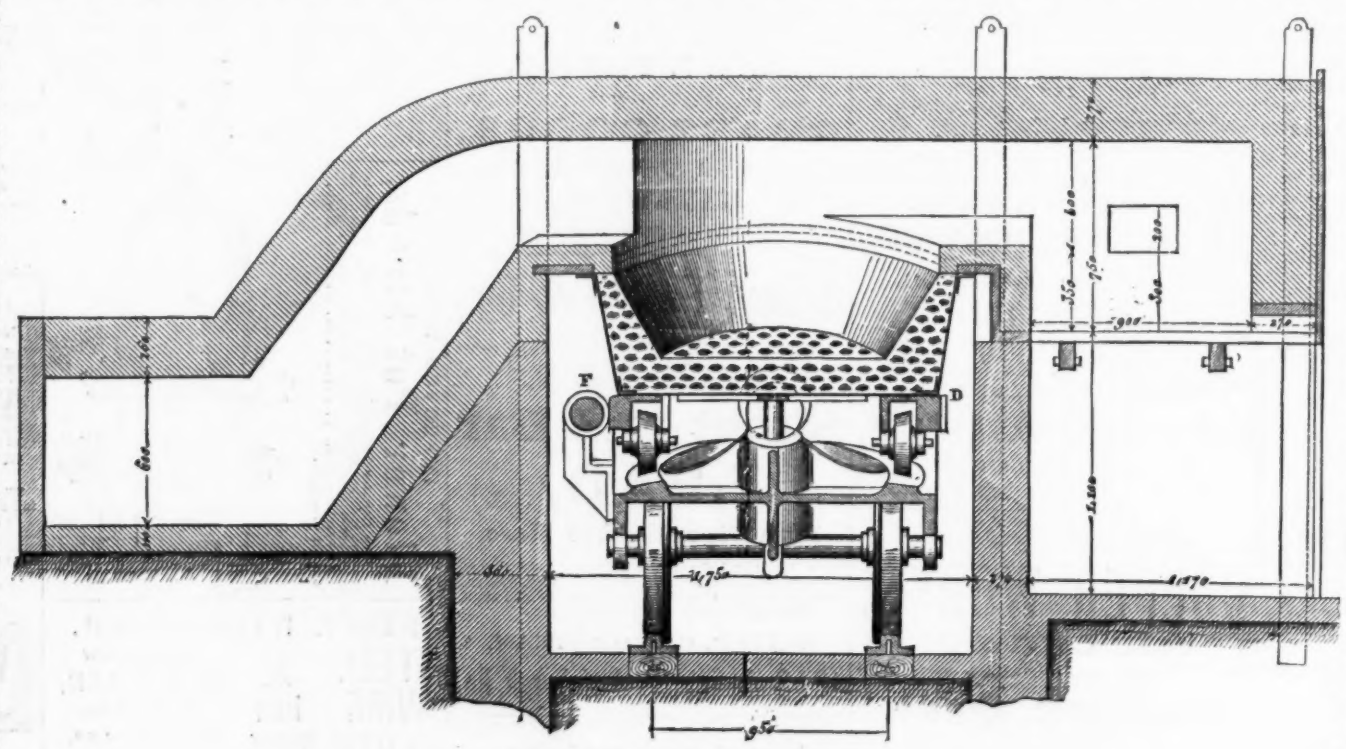
The Pernot Rotary Puddling Furnace.

The new puddling furnace shown in the accompanying illustration has been so fully described in these columns that only a few general remarks explaining the construction of the furnace are needed at this time. Its characteristic feature is an inclined hearth, not more than one-half of which is ever covered by the molten metal. This modification, it is stated, has given important advantages, as the higher part of the hearth forms a rapidly oxidizing surface for the thin layer of metal by which, because of adhesion and by centrifugal force, it is constantly covered.

The hearth is supported by two pairs of wheels, which rest on a circular track, and is guided in its rotation by its central spindle passing down through the center of the supporting bed. Rotary motion is given to it by a worm, F, which engages in the cogs on the circular portion, D, on which the hearth rests. The whole is mounted on trucks, as shown, resting on a suitable railway. The metal about the hearth has a lining of scoria or ore a few inches thick.

The hearth, mounted upon its car, is wheeled directly into the furnace, in a position as near as possible to the metal plate that supports the masonry above. When the hearth is at a reddish white heat the interstices are closed with fragments of ore, and the operation of puddling is carried on by rotating the hearth some three or four turns per minute, care being taken to spread the contents evenly over the surface. The formation of blooms is the same as in ordinary puddling, except that, owing to the rotation of the hearth, the work can always be done directly in front of the door. Water circulation can be employed for cooling. The ordinary charge is about 1100 pounds, and this is divided into seven or eight blooms, the average time of forming which is about half an hour, including the period necessary to transport them to the forge. A complete operation, comprising the squeezing, lasts about two hours, the cleaning of the grate and reheating of the furnace occupying about half an hour of this period.

At the foundry of St. Chamond, France, in one week, there were produced, in 11 heatings, 25 tons of fine puddled iron, while by hand puddling the same iron (gray charcoal) did not yield over 12 tons. In the former case the loss did not exceed 30 pounds of raw per 1000 pounds of finished product; in the latter the loss was fully 2000 pounds. The consumption of fuel, at the same time, was reduced from 3300 to 2640 pounds.



THE PERNOT ROTARY PUDDLING FURNACE.

Mechanics in all trades would save themselves much trouble by marking their tools. An easy way to do it is to coat over the tools with a thin layer of wax or hard tallow, by first warming the steel and rubbing on the wax warm, until it flows, and let it cool. When hard, mark your name through the wax with a graver, and apply aquafortis (nitric acid). After a few moments wash off the acid thoroughly with water; warm the metal enough to melt the wax, and wipe it off with a soft rag. The letters will be found etched into the steel.

Hints to Steam Users.

Mr. J. M. Allen, President of the Hartford Steam Boiler Inspection and Insurance Company, has favored us with a copy of his valuable annual report for 1874, from which we make the following interesting extracts:

The work of the company has developed many and serious defects in connection with the boilers under its care, and impresses upon us the fact that boilers of all kinds are liable to very reckless management. The number of defects in all discovered, was 14,256, or about 1 defect for every 3 boilers examined; of these defects, 3486 were regarded as dangerous. Some may think this statement made for effect; but while we do not claim that every defective boiler would certainly have exploded, we are free to say that there was liability to accident at any moment, and the company did not feel authorized to issue a guaranteed certificate until suitable repairs were made. It will be understood that in making these inspections not only our money but our reputation is at stake. The defects we have classified under different heads as heretofore. In mentioning them, such remarks and explanations will be made as will best give a correct impression of their nature:

FURNACES OUT OF SHAPE—FRACTURED PLATES.

These two defects are mainly the result of the same cause, viz., overheating and too sudden cooling. It is quite plain that those portions of the boiler in direct contact with the fire are subjected to the severest trials; hence boiler furnaces are generally constructed of the best *fire box* iron or of soft steel. If from an accumulation of sediment or scale, the water is kept from direct contact with the heated plates they become overheated and softened and yield easily to the pressure above, then is produced what is known as "buckled" and contorted sheets, or "furnaces out of shape." The iron loses from *two-thirds* to *three-fourths* of its strength, and rupture and explosion are imminent. Sometimes a spot, 10 inches or a foot, or more, in diameter, on the crown sheet of a fire box boiler, will settle or bag down two or three inches, and rupture may occur at the apex of the convexity. This arises from sediment having accumulated on the area affected; it has been deposited by the currents and counter currents, engendered by the intense heat; the water has been kept from contact with the iron at this particular spot, and overheating and softening has rendered it unable to withhold the pressure, and it settled down. These difficulties are not as liable to occur in the use of externally fired boilers, where large flat surfaces, and the crown sheet bars, and crow feet stays, so liable to aid the accumulation of sediment, are avoided. It must be remembered that when iron is heated to very high temperature it is greatly expanded, and there is a point beyond which, if it is expanded, it takes a permanent set, that is, it does not return to it original condition when cooled. This point is called its thermo-elastic limit, and when iron has passed that limit, by overheating, it is greatly reduced in strength.

We have seen by the foregoing what the effects of overheating are. An equally important question is, how to cool down an overheated boiler without injuring or ruining it? A sudden cooling of heated plates is productive of serious consequences. When a boiler is found in an overheated condition, the usual way is to open the furnace doors and allow as much cold air to come in contact with the heated plates as possible, and if it is ascertained that the water is low, to start a pump and very likely pour in cold water at a temperature approximating to the freezing point. It will require no extraordinary engineering skill to see that by such practice the plates, tubes and flues are suddenly cooled, and liable to fracture. The expansion of the metal has been gradual, extending as the temperature increased; but the contraction is instantaneous, and some portions of the iron being more exposed than others, the contraction is not uniform, and the result is, fractures attended with more or less danger. These fractures are very liable to occur at the riveted joints, and extend from the rivet hole to the edge of the plate, and along the line of rivets from hole to hole. This latter defect is very dangerous, and, if discovered in the slightest degree, should be carefully watched. It will be seen from the above that boilers are liable to both longitudinal and circumferential expansion and contraction, and the fractures resulting therefrom are mainly in consequence of poor management. If currents of cold air are allowed to flow into the furnace every time the fire is fed, or if cold water is pumped on to heated plates, serious trouble, if not accident, must ensue. Our attention was lately called to the condition of some rolling mill boilers, which were leaking badly around the tubes, and repairing seemed to have little effect. On examination it was found that they were under a shed, with open sides, and in a very exposed place. Every time the fires were fed a cold current of air poured in upon the heated plates, and sudden contraction of the metal was what did the mischief. A protecting wall was thrown around the boilers, making, comparatively, only a small space in front of the fire doors, and the difficulty was obviated. It is not uncommon at iron works to find boilers in this exposed condition, and sometimes they have not even the protection of a shed over them, but are exposed to all kinds of weather, winter and summer.

BURNED PLATES.

The causes of burned plates are akin to those which occasion fractures, and under the heading, "Incrustation and Scale," we shall have something further to say of this defect.

BLISTERED PLATES.

Lamination in boiler plates is not an uncommon defect. It arises from imperfect welding of the bars composing the pile from which the sheet is rolled. A sheet will be found laminated in some portions and perfectly homogeneous and sound in others. This can only be accounted for on the grounds that the bars are not perfectly clean from particles of sand and scoria. This laminated condition will sometimes manifest itself in from four to six distinct leaves or layers; and when such plates are subjected to high temperatures, the defect shows itself by bulging spots of greater or less area on the fire surface, known as blisters. The layer of iron next to the fire is heated to a higher temperature than those farther away, and is consequently greatly expanded and bulged out, or, in common language, blistered. This defect is often more serious than at first appears. The thickness of the blisters may be a quarter or more of the entire thickness of the plate, and when they extend from 8 to 18 inches, as we have sometimes found them, they reduce the strength of the plate, and thereby become a dangerous defect. In all cases of this kind, the blister should be carefully trimmed off, and if its thickness is found to be sufficient to materially reduce the strength of the iron, a riveted patch should be provided. Upon the subject of laminated sheet, and the effect of high temperature thereon, the late Sir William Fairbairn has said: "It is evident that the temperature of the side of the sheet toward the fire may be upward of 1000°, while that of the other side is very little above 212°, or the temperature of boiling water;* and supposing there be any imperfection or want of soundness in the plate, the result will be a greater expansion on the exterior surface, causing it to rise up in blisters. * * * These defects are invariably present when the plates are not sound."

DEFECTIVE WATER GAUGES.

The defects arise from the stoppage of the water and steam passages. Dirty water affects these gauges seriously, and when solvents of scale are introduced into boilers the surface of the water is sometimes rendered very foul, which affects more or less these attachments. If the water passage is stopped the indications of the gauge are not to be relied upon at all. And no doubt many an accident has occurred from the engineers supposing that there was an abundance of water, when in fact the water gauge was out of order. These gauges should never be depended upon to the exclusion of the gauge cocks.

DEFECTIVE BLOW-OUT.

These defects arise from the valves getting out of order, so that they do not close tightly and from the apparatus becoming choked. If the blow-out apparatus is used as often as it should be, the latter difficulty will be obviated. When a boiler has been blown down and refilled, a fire should not be started until from the gauge cocks it is ascertained that the water is not leaking out.

SAFETY VALVES.

The defects to which this appliance is liable are numerous, but they are generally more the fault of the engineer than of the appliances. They are put often away in inaccessible places, and left to themselves to operate when the steam shall reach a pressure in excess of their load. If this does not occur only once in a long time, the valve may become inoperative and cease, under any circumstances, to become a *safety valve*. If very high pressure is used, it is not uncommon for engineers to overload the valve. A safety valve should be loaded only a little in excess of the maximum pressure used, and then any excess of pressure will be provided for.

DEFECTIVE PRESSURE GAUGES.

This attachment needs care and attention, or it will cease to be a correct indicator of pressure. There is great carelessness in the construction of many steam gauges. They will indicate very accurately for a while, but, sooner or later, begin to show variations that render them very unreliable. Hence, the folly of undertaking to say that such and such a gauge, from certain tests, is better than others. The material, workmanship and care have more to do with reliable gauges than fancy finish and recommendations of A, B and C. Of course, the principle must be correct and one that will stand; then, good material, workmanship and care. In an experience of some nine years we have tested thousands of steam gauges, and the variations are simply alarming, ranging from +20 to −60. It will be readily seen that a gauge which is −, or slow, is dangerous, for the steam user is deceived, and is actually running at a pressure as much in excess of the indicated pressure as the variation is found to be. Thus, if the indicated pressure is 80 pounds, on a gauge which −20 the actual pressure run would be 100 pounds. Now, these excessive variations are not the rule, but they are more frequent than they should be. The gauges of all the boilers placed under the care of this company are frequently compared with one known to be correct. Each of our 26 inspectors has a gauge that is corrected by a mercury column, which has been erected in this office at great expense, and is believed to be second to none in the country. This column is about 50 feet high and has a range of nearly 300 lbs. No steam gauge should be allowed to run year after year without being compared with one known to be correct.

DEFICIENCY OF WATER.

This defect may arise from two causes. First, the boiler may be too small for the work required of it, and, by fierce firing and forcing, the water is liable to get low, and the boiler consequently burned. This is liable to be the case where a manufactory is enlarged by adding more machinery and not increasing the boiler power. Another cause is carelessness on the part of the engineer or fireman. When the boiler is blown out the blow-out valve is not entirely closed, and when the boiler is filled it slowly leaks away. Sometimes during the night the water will entirely run out of the boiler, and if the fires are started before the state of the water is ascertained, the boiler may be ruined from deficiency of water. We would urge upon all engineers the importance of ascertaining the state of the water in their boilers before starting up or replenishing their fires in the morning.

BROKEN BRACES AND STAYS AND INSUFFICIENT BRACING.

When we consider the immense pressure that boilers are subjected to, the importance of proper bracing and staying will be appreciated. If we take, for instance, a boiler 36 inches in diameter and 14 feet long, under 70 pounds pressure per square inch, we shall find that the entire pressure to which the shell of the boiler is subjected will be, $36 \times 3{\cdot}14159 \times (14 \times 12) \times 70 = 1{,}330{,}021$ pounds, or about 665 tons. This estimate does not include the pressure on the heads. From this will be seen the importance of bracing and staying the weaker portions of the boiler, and this work should be done intelligently and thoroughly. If, therefore, the braces in a boiler become loose or broken the use of the boiler may be attended with danger. This defect can only be ascertained by thorough internal examination. There are boilers so small or of such construction that internal examination is impossible. In small tubular boilers bracing is not as important, for the tubes themselves act as braces and stays, but every large boiler should be so constructed that access internally may be had.

(To be continued.)

* There has been some discussion among engineers, as to whether there is so wide a difference in temperature between the outer and inner surfaces of the iron sheets of boilers as Mr. Fairbairn allows. The claim by those who do not adopt the theory is that the temperature of the iron must always be higher than that of the superincumbent water, or rapid circulation would not ensue.

The Senate Committee on Patents has decided to report adversely on the application of A. B. Wilson for an extension on the patent for "four motion feed" for sewing machines. Under the needle of the principal sewing machines there is a little toothed feed bar or pad, which, at regular intervals, moves forward a short distance, carrying the cloth to the needle, then drops down, moves backward the length of a stitch, is raised again and resumes its forward motion. This is the "four-motion feed." It is a very essential part of a sewing machine, but is said to add immensely to the cost thereof, because the patent on it is owned by four sewing machine companies. It is expected that upon the expiration of the patent the price of sewing machines will be considerably reduced, and an immense number of petitions have been filed in the case. A Washington correspondent says that "one exhibit makes twelve volumes as large as Webster's Unabridged Dictionary, which the owners of the patent once requested the Commissioner of Patents to peruse before making a decision!"

Coal Discoveries on the Union Pacific.

The land commissioners of the Union Pacific Railroad have lately procured several specimens of a very superior coal twelve miles from the line of the road, at a short distance west of the Laramie Plains. The deposit, like others already worked in Wyoming, is said to be of great extent. Of the mines now developed, the road own a large number, or stock in them, from which their own supply is procured, and a large portion of that used by the Kansas and Denver Pacific Roads, beside half the fuel consumed by the population west of Omaha to the western slope of the Rocky Mountains. Beside these, there are other large mines, notably the Rocky Mountain Coal Company, whose works are at Evanston, on the Northern Pacific, from which the Central Pacific Road draws its chief supply, it having discovered no coal deposits on its line. Thus it will be seen that these coal mines of Wyoming are likely to prove a considerable source of wealth to the vast region lying between the Missouri River and the Pacific Ocean. The quality of the coal in these mines, however, is peculiar, being neither anthracite, nor bituminous, but possessing in part the qualities of both. It is much like coal discovered in Germany, which is used largely for smelting iron ores. The peculiarity of the discovery alluded to is, that in color and appearance it closely resembles the celebrated cannel coal, and it burns with a brilliancy that shows that it is full of oil. It has no shale or clinker, and the only refuse is a clear white ash. It is clearer even than the Rock Springs, which is by far the purest of Western coal now in use.

Enterprising parties are attempting to organize a stock company, at Santa Clara, Cal., with a capital of $100,000, for the purpose of securing the location of J. T. Walker & Co.'s iron works there.

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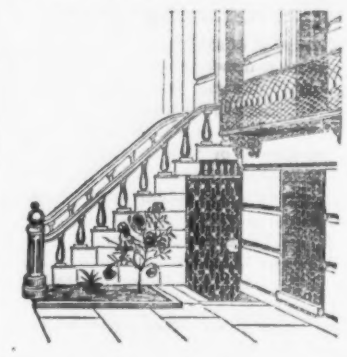

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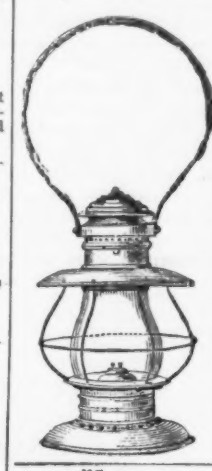

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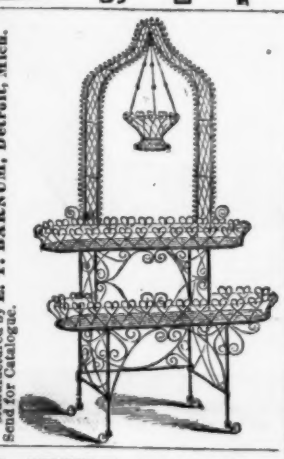

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Progress of American Iron and Steel.

Our able contemporary, the Philadelphia *North American*, says:

According to the notions of the American free traders the manufacture of steel in the United States is a weak and sickly exotic, forced and unnatural in production, and not deserving of encouragement. But statistics do not bear out this idea. On the contrary, they show that this is a most flourishing and promising industry. In the year 1872 the world's production of steel and homogeneous iron, chiefly in the form of Bessemer metal, was 1,064,988 tons, of which England produced 500,000 tons; Germany, 200,000; United States, 143,000; France, 138,000; Austria and Hungary, 49,250; Belgium, 15,284; Sweden, 12,000; Russia, 7204; Spain, 250. So that we stand third on the list by this statement, and at the present time our capacity is so greatly increased that in a prosperous year we should stand second. In order that it may be seen what is the true importance of the position we have attained in this industry we may state that in 1865 the English production was only 160,000 tons, and that of France but 50,000 tons.

Thus it appears that the period when the manufacture of steel sprang up in the United States with such amazing vigor was the very one when the industry was leaping into new life in Europe. Under the protective system it was firmly planted in America, but it had to encounter the blind and stupid opposition of free traders, who either did not understand the nature of the situation that had given such a vast impetus to the use of steel, or were determined that the industry should not be naturalized in America. During all the time that the introduction of the manufacture of steel was in progress here the Pennsylvanians who were engaged in the movement were pursued and vilified as though they had been little better than Tweed and his gang, and nothing was left undone to rivet upon us the fetters of a foreign monopoly not then fully established, but in process of creation, as the above figures show. The market for steel was largely a new one, produced by the introduction of steel rails upon railroads, and at the same time the methods of making steel were new and better, in consequence of the introduction of the Bessemer process. Yet just at this critical moment, when it was most important that we should adopt the industry, in order to supply our own wants, every effort was made to render the American steel manufacturers odious to our own people whom they were laboring to serve.

The fact is that our Republic makes more pig iron and more soft iron than any other country in the world except England, and that if we had neglected to go in to the production of steel at this crisis, as others were doing, we should have been guilty of the most egregious folly. In pig iron we make as much every year as France and Germany combined, and in soft iron England alone excels us, and the next highest nation is about 500,000 tons behind us. The importance of these several manufactures can be best understood by reference to the enormous industries in which these raw materials are used, such as railroads, and in the production of tires, axles, plates, saws, axes, tools, cutlery and hardware, for all of which we must have been dependent on Europe, if the free traders could have had their way.

Looking at the immense wealth of the Republic in iron and coal, it is amazing that any American can be so blind to the interest of his country as to discourage the progress of the iron and steel industry at home, and to favor the foreign importation instead. There is no exaggeration in saying that, with our resources and with the steadily expansive capacity of our home market, and the increase of our export trade, we ought not only to equal England in iron and steel, but to pass ahead of her and take command of the world's markets. And it has long been our own belief that such must be the ultimate result. In the course of time we shall ship raw iron and steel to Europe, just as we now ship breadstuffs, provisions, hides and leaf tobacco. For the present the production has gone beyond the wants of the home market, in consequence of the railway reaction. But with the recovery of that great interest, and the extension of the export trade, the production must again go on increasing, as new mines are constantly being opened and new works built.

Condemned so long to struggle desperately for a bare existence, the American iron and steel interest now finds itself exceeded by that of only one other nation, and, with that single exception, to have completely distanced all the rest. And now the two great competitors—England and the United States—stand before the world preparing for the mighty struggle for supremacy in this prime industry of civilization. All weapons and all efforts have alike failed to arrest the grand career of the Republic in this interest, and now the national ambition is fully aroused by what has been already achieved, and is firm in the conviction that America can as well take the lead in iron and steel as in cotton and grain. If internal activity cannot be resumed soon on a scale adequate to make an increasing home market, the iron and steel interest must find an outlet in the export trade. Markets do not spring up of themselves. They are erected by enterprise, commercial tact, ingenuity and adventurous effort, and as even now, when the domestic works are more than equal to the supply of the home market, the imports of foreign iron and steel still go on, we must make a general contest for the trade of the world, and thus mark the fact that our industry is not a weak and puny exotic, but indigenous to the soil, and as hardy and thrifty as any known to commerce. If there be no such thing as putting a stop to the efforts of the free trade propaganda to injure us at home, let us beard the lion in his den. We have already beaten the English in axes, saws and various kinds of hardware in the markets of Canada and Australia, and there are some of our products that we can sell to advantage even in England. Belgium, French and German competition has made some classes of English manufacturers rather sick of free trade. We can do likewise. Let it be understood that we have raised our expectations, and mean to strike out boldly everywhere for the leading position in the iron and steel trade.

Wire Making at Cuyahoga Falls, Ohio.

Among the manufacturing enterprises lately inaugurated at this enterprising little town is the Falls Wire Company, organized for the purpose of carrying on the manufacture of all the finer grades of iron wire—bright, annealed, coppered and tinned. This company was incorporated in July, 1873, and immediately thereafter begun the erection of suitable works for the prosecution of the business. These works were completed, the requisite machinery put in, and went into operation in February, 1874. They are of brick, the main building, used as the mill, being three stories high with basement, and 75 feet in length by 45 feet in width. A wing one story high with basement, 55 feet in length by 35 feet in width, connects with the mill, and is used as the annealing house. The buildings are fire proof, and are substantially built and conveniently arranged. The works are run by water-power, two of James Leffel & Co.'s turbine water wheels being used, one of 40 and one of 16 horse-power. The arrangements for conveying the power to the machinery are of the most perfect description, while in every respect the facilities of the company are ample and complete. The basement of the main building, or mill, contains the shafting, and there is also located here a cistern, with a capacity of over 500 barrels of water, which is pumped to all parts of the building. On the first floor of the mill is the machinery for drawing coarse wire. There are five machines now in use, working 36 blocks.

This machinery was built at Worcester, Mass., and it is the intention of the company to increase the number of machines to 12. The second floor will be devoted to drawing fine wire, for which purpose there are now 200 blocks in position, and the number will be increased from time to time, as the requirements of the business may render necessary. The third floor will be devoted to tinning wire. The annealing house contains four annealing furnaces. With the machinery now in place, the works have a capacity for turning out two tons of fine wire per day. From 20 to 25 men are employed.

This is the first mill built in the West for the manufacture exclusively of fine wire, and it has proved a success, as shown by the quality of the goods produced, and orders for wire that are coming in from all parts of the country, most of them coming from the West, but they have some fine orders on their books for pin wire, hook and eye wire, and goods of this class, from several of the New England States. The mill has been kept busy from nearly the first day since starting up. A portion of the mill is now, and has been, running on double time all winter.

At present they buy their raw material in coils of one-fourth inch rods rolled in Norway, but it is the intention eventually to buy the imported "billets" and roll their own rods.

Alabama Coal.

The Philadelphia *North American* says:

When Pennsylvania capital was attracted to the valley of Virginia, to Eastern Tennessee and northern Georgia and Alabama by the rich deposits of iron and coal in each of those sections, it was seen that they must be developed and utilized more rapidly, and that at no remote day we should have Southern competition and co-operation. The movement grows. The latest instance is the formation of a coal and navigation company in Alabama, that owns 30,000 acres of coal and iron land on the Tombigbee, some 350 miles above Mobile. The coal is the last Southern deposit in this country; is of the Cumberland variety, and in 40 feet veins; and it is in inexhaustible amount. The company have been chartered with an exclusive right to use the river for coal transportation for 20 years, and exempted from State taxes forever. The iron privilege and hope are named, but rather as contingent to cover possibilities than for any definite expectation.

The great value of this measure, we apprehend, will be found in its supply of bituminous coal to the adjacent country, and to Gulf ports that have drawn from remoter mines. It is claimed that by floating the coal to Mobile it can be furnished everywhere on the Gulf at less than $5 per ton, and a promise is made to unload it along the whole northern Atlantic for that figure. Now, millions of tons are consumed annually, and St. Thomas and Jamaica derive profit from the importation of British coal that is sold between $9 and $20, and Maryland ships largely. Now, too, the growing factories call for coal, and steamships furnish a market. Both are increasing in number. The Alabama supply at the price named must necessarily drive away rivalry, control the island markets as well as those of the Gulf literal, and supply the interior consumption.

Thus the south continually adds to the development of its own resources, and takes hold of new and greater prosperity. It has everything required to realize extreme desires; and, continuing as it has commenced, it must very soon find its agriculture expanding in harmony with other interests, and be led to feel and so moved to act for the improvement of the great endowments that in one form or another are found in every State, and give an unity of interests to the country more powerful than laws can create.

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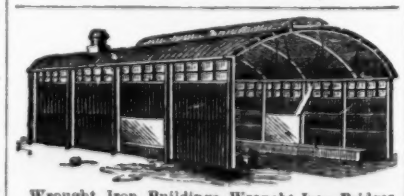
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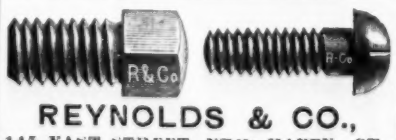

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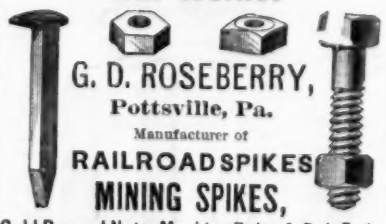
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New Patents.

We take from the records of the Patent Office at Washington the following specifications of certain patents lately issued, which will be found interesting:

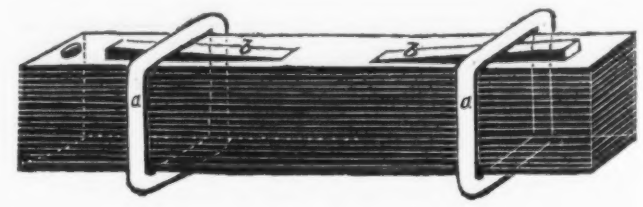
IMPROVEMENT IN HARDENING THE BLADES OF SQUARES.

Specification forming part of Letters Patent No. 157,566, dated December 8, 1874; issued to Leonard Bailey, of New Britain, Connecticut.

It is essential that the blades for try-squares, and other squares which are made of steel, should be flat and true on the sides. It is very desirable that the edges of these blades be hardened or tempered, but it will not do to attempt the hardening of the blade by the common method—that is, to heat it to red heat and then plunge into a bath of water or other hardening fluid—for such process will twist and spring the blade out of shape. This invention is a process whereby the edges of the blades are hardened, leaving the center of the blades soft, without twisting or springing the blades in the least.

The process is a very simple one: The blades are bunched together side by side, as shown in the drawing, and held together thus bunched in some appropriate manner, as by the hoops *a a*, wedges *b b* being used to tighten the whole together. The whole bunch or fagot is then heated to a red heat, or above, and plunged into the water or other bath. The result is that, with the exception of the two outer blades, all the blades are hardened along the edges only. The two outer blades can be put within the fagot the next time, and will come out hardened at the edges only.

By this process the hardening of the edges is



effected without injury to the form or truth of the blade, but a large number of blades can be hardened at once, it being practicable to include twenty-two try-square blades and more in one fagot. This process is applicable to other uses than hardening blades for squares only.

Claim.—The process for hardening the edges of steel plates, the same consisting in collecting the blades into a bunch or fagot, then heating the bunch or fagot to a red heat, as above, and then suddenly cooling the fagot in a water or other bath, as described.

IMPROVEMENT IN THE MANUFACTURE OF STEEL.

Specification forming part of Letters Patent No. 156,596, dated November 3, 1874, issued to Mark Rush, of Atlanta, Georgia:

This invention relates to a new and improved composition to be used in the manufacture of steel from ordinary cast iron, which consists in a combination of carbonate of ammonia and chloride of sodium in various proportions, according to the nature of the steel to be produced.

It is a well known fact that it is necessary, in the formation of steel, to combine carbon in varying proportions with decarbonized iron; and it is further well known that the presence of nitrogen adds to the facility with which the steel is formed, and gives a product of great elasticity and tensile strength.

Heretofore the combination has been effected by heating wrought iron in closed boxes with animal matter containing carbon and nitrogen, such as leather scraps, or other equivalent or analogous material. This has been found objectionable, owing to the fact that it is very difficult to determine the definite proportions of the carbon and nitrogen in such compounds, and this renders it almost impossible to foretell the quality of the resultant steel.

This compound is designed to overcome this defect by substituting for the animal compound a mineral composition in which the proportions of carbon and nitrogen are definitely known. For this purpose use carbonate of ammonia, a salt composed of carbon, oxygen, nitrogen and hydrogen. This is combined with chloride of sodium, which performs the part of a flux, excluding the atmosphere from the mass of molten iron, and allowing the ammonial salt to have full effect during its decomposition.

In carrying out this invention, the carbonate of ammonia is used in the proportion of one-half ounce to from five hundred to eight hundred pounds of the ordinary pig or cast iron, using the common salt in the proportion of one pound of such salt to the same proportion (five hundred to eight hundred pounds) of metal.

Use an ordinary puddling furnace in the preparation of the steel, with any convenient charge of pig iron, usually the common charge, varying from five hundred to eight hundred pounds. The iron is subjected to the ordinary process of puddling, and, when fully melted, and nearly or wholly decarbonized, the mixture is introduced in the form of packages, which are thoroughly commingled with the metal by the operator by stirring and agitating with the ordinary tools.

In the formation of ordinary low steel, one package of the compound containing one-half ounce of carbonate of ammonia and one pound of chloride of sodium will be sufficient for the purpose, and the grade of hardness in the steel may be varied up to the very highest standard by employing additional packages, as may be desired.

Claim.—The compound for the manufacture of steel from decarbonized iron, consisting of carbonate of ammonia and common salt in about the proportions herein described.

Thermometers.

Several different heat measures are in use, but chiefly Reaumur's, the centigrade of Celsius, and Fahrenheit's. Now, the two former, in constructing their scales, put the zero at the freezing point of water, where it naturally belongs, but the latter puts the zero at 32° below the freezing point of water. The consequence is that if in a given place the temperature is measured on a Reaumur or centigrade thermometer, 40° below zero means 40 of the Reaumur or the centigrade degrees below the freezing point, which point in Fahrenheit is 32° above zero. Now while in our country thermometer makers almost exclusively use the Fahrenheit scale, it being also in common use in England, yet Reaumur is used in Germany, except for scientific purposes, when resort is often had to the centigrade, which last is both in common and popular use in France.

But what we wish particularly to note is that, after all, in reports of what appears extraordinary cold weather, it is safe to assume that it must be Fahrenheit temperature that is reported. We will proceed to show why. In the Reaumur thermometer the freezing point of water is at 0, and the boiling point of water is called 80; in the centigrade, with French exactitude and scientific naturalness, the freezing point is marked 0, and the boiling point is marked 100, thus giving an intermediate scale of a 100° for easy subdivision; in the Fahrenheit these points are put respectively at 32° and 212° above zero. It is, therefore, evident that 80° Reaumer are equel to 100° centigrade or 180° Fahrenheit; and that 4° Reaumer equal 5 centigrade and 9 Fahrenheit. Accordingly, if we should say that the mercury had fallen 4° below zero, meaning Reaumer, but not saying so, it would give a very wrong impression, as this temperature would be 23° above zero, Fahrenheit. But if the reported cold was 20° below zero, by Beaumur, it would not be very deceitful, for that would be 13 below zero by Fahrenheit. And a temperature of 28° below by Reaumur would be 31° below by Fahrenheit. When, therefore, we had a cold snap of 35° below zero reported from Laramie, the other day, it is safe to assume that it was Fahrenheit, because on the Reaumur scale quicksilver freezes at 32 below zero, while on the Fahrenheit scale it freezes at 40 below zero. For any lower temperatures, spirit thermometers are used, as the alcohol does not freeze from cold weather. The same may be said with still more force of the 44° below zero lately reported from Virginia City, and the 45° from Fetterman. The latter was measured on a spirit thermometer, and the scale could not have been Reaumer, because 45° would be equivalent to 68° below zero by Fahrenheit, which is impossible in this climate.

Black Stains for Wood.

A German trade circular describes two kinds of black stain for wood: (1) The ordinary black stain for different kinds of wood. (2) The black ebony stain for certain woods which approach nearest to ebony in hardness and weight. The ordinary black-wood stain is obtained by boiling together blue Brazil wood, powdered gall apples, and alum, in rain or river water, until it becomes black. This liquid is then filtered through a fine organzine, and the objects painted with a new brush before the decoction has cooled, and this repeated until the wood appears of a fine black color. It is then coated with the following liquid: a mixture of iron filings, vitriol, and vinegar is heated (without boiling), and left a few days to settle. If the wood is black enough, yet for the sake of durability, it must be coated with a solution of alum and nitric acid, mixed with a little verdigris, then a decoction of gall apples and logwood dyes are used to give it a deep black. A decoction may be made of brown Brazil wood with alum in rain water, without gall apples; the wood is left standing in it for some days in a moderately warm place, and to it merely iron filings in strong vinegar are added, and both are boiled with the wood over a gentle fire. For this purpose soft pear-wood is chosen, which is preferable to all others for black staining. For the fine black ebony stain, apple, pear and hazel wood are recommended in preference for this; especially when these kinds of wood have no projecting veins they may be successfully coated with black stain, and are then most complete imitations of the natural ebony. For this compound 14 oz. of gall apples, 3½ oz. of rasped logwood, 1¾ oz. of vitriol, and 1½ oz. of distilled verdigris are boiled together with water in a well-glazed pot, the decoction filtered while it is warm, and the wood coated with repeated hot layers of it. For a second coating a mixture of 3½ oz. of pure iron filings, dissolved in three-quarters of a litre of strong wine vinegar, is warmed, and when cool the wood already blackened is coated two or three times with it, allowing each coat to dry between. For articles which are to be thoroughly saturated, a mixture of 1¾ oz. of sal-ammoniac, with a sufficient quantity of steel filings, is to be placed in a suitable vessel, strong vinegar poured upon it, and left for fourteen days in a gently heated oven. A strong lye is now put into a good pot, to which is added coarsely bruised gall apples and blue Brazil shavings, and exposed for the same time as the former to the gentle heat of an oven, which will then yield a good liquid. The pearwood articles are now laid in the first-named stain, boiled for a few hours, and left in for three days longer; they are then placed in the second stain, and treated as in the first. If the articles are not then thoroughly saturated, they may be once more placed in the first bath, and then in the second,

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NAILS AND BAR IRON,
Bands, Scrolls, Horse Shoe Bars Nut and Rivet Iron, Spike Rods, Shanting, Bridge Bolts, Ovals, Half Ovals, Half Rounds, &c.

OLIVER'S Chilled Plows.

These implements in their present form, though but few years before the public, show the following remarkable record:

1506 were sold in the season of 1871.
3049 " " " 1872.
7472 " " " 1873.
14,976 " " " 1874.

(Excluding those of sales in new territory), while for the season of 1875, the capacity of the works has been increased to turn out 30,000 plows complete.

The cause of this astounding result is that the OLIVER CHILLED PLOWS prove on trial to be all and more than we claim for them, on following points, viz:

1st. They are the lightest draft.
2nd. They are the most durable.
3rd. They are perfectly adjustable and have a carter draft.
4th. They will scour in all kinds of soil.
5th. They are the cheapest plow used.
6th. They are the only chilled plows made.

Our first point is secured by the share and moldboard forming one continuous curve, thus compelling the soil to touch every part with equal firmness; the shape is easy and natural and abrupt angles do not exist, while our chilled iron possesses a peculiar smoothness and solidity throughout, far ahead of any other metal used in plows.

Our second point needs no explanation from us, as chilled iron is conceded by all to be the hardest and most durable metal used for this purpose.

Its temper is uniformly hard, and will not scratch nor corrode.

Our third point is secured by a movable beam, placed over the center of the work, which can be accurately adjusted by moving to the right or left, that the plow will run without handling. With these plows the most uninteresting portion of farm labor becomes a pleasure and a pride.

Our fourth point is secured by the combination of our chilled metal with the common sense shape of moldboard and share. Every part of the metal below the ground is subject to equal wear, leaving no portions untouched to which the soil can attach and clog the plow. The change from gravelly to prairie soil can be made with safety, as the metal is so hard that it cannot be scratched; hence its peculiar smoothness is undisturbed and cannot rust.

Our fifth claim is easy to substantiate, for the draft of OLIVER'S CHILLED PLOWS will average fully twenty-five per cent. below that of all others, which means that, out of every four days' work with other plows, the labor of one day can be saved, by using

OLIVER'S CHILLED PLOWS,

with the same amount of power expended. The great durability of these plows consequent upon the extreme hardness of the chilled metal, is another item to be considered in this connection.

Our chilled moldboards, after plowing one hundred acres, show a loss of weight of from four to seven ounces, depending on the soil in which they are used.

The result cannot be equaled, much less surpassed, by any other metal, or combination of metals, ever used in plows.

Our sixth claim we will not discuss here, but should it be disputed by any one, we shall be happy to convince the most skeptical of its truthfulness. Call on us for the proofs at any time, and we pledge our words they shall be produced.

We are the only manufacturers in the world that devote their entire capital time and facilities to the production of plows, and the natural result is perfection in the implement produced under such circumstances.

For full descriptive circulars explaining the merits of

OLIVER'S CHILLED PLOWS,

or other information relative thereto, address,

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SOUTH BEND, IND.

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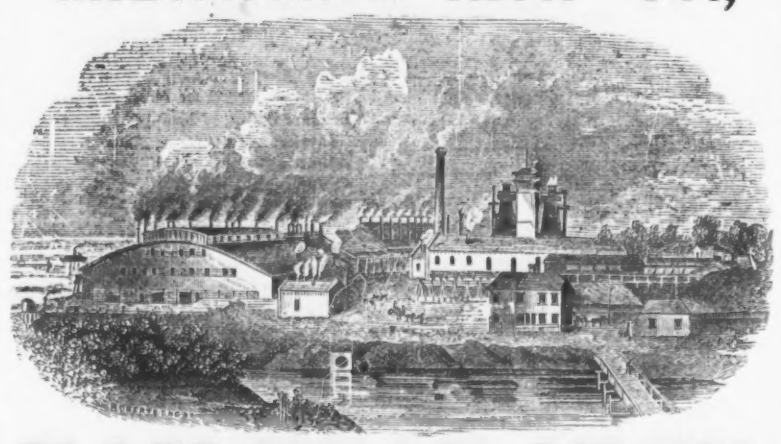

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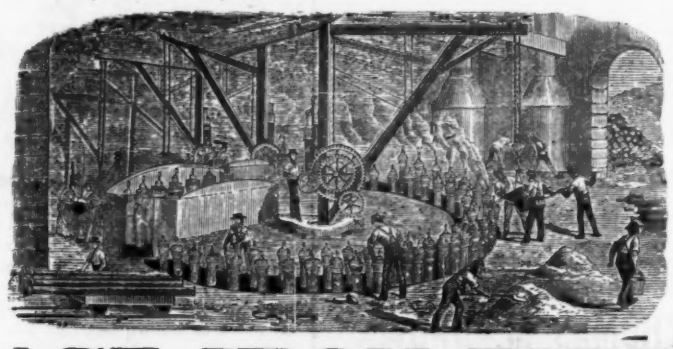

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Engineers, Contractors and Manufacturers of Gas Apparatus.
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Buildings, Tanks, Holders, &c., required for the Manufacture, Purification, and Storage of Gas, and Street Mains Requisite for its Distribution.
Plans, Drawings, and Specifications promptly furnished.

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CAST IRON STREET MAINS, for Water and Gas, from One and a Half Inches to FORTY-EIGHT Inches in Diameter.
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Underground Telegraph Lines.

In certain essential features the arrangement and manipulation of the telegraph in European countries are far in advance of our own. One prominent fact abroad is the extent to which the underground lines are carried there. From Mr. George B. Prescott's account it appears that the underground lines in England are both extensive and well constructed, embracing 3000 miles of wire and nearly 100 miles of iron piping. The conductors usually employed for underground lines consist of No. 18 copper wire, covered with gutta percha to the gauge of No. 7. In order to keep the gutta percha from the atmosphere, the exposure to which would cause it to crack and decay, and thus destroy the insulation, it is tarred and then covered with linen tape and then tarred again. The preparation of tar through which the gutta percha and taped wire is drawn is composed of one quart of raw linseed oil to two gallons of Stockholm tar, and is applied warm. The wires when thus prepared are cut into lengths of 400 yards, and as many as are required to be laid in one tube are made into a loose cable, and tied together with tape at distance of six feet apart. When the wires are drawn into the tubes, the tapes are removed and the wires permitted to lie loosely in the pipes.

The tubes into which the wires are drawn are cast iron socket pipes of two, three, and four inches diameter—the size employed depending upon the number of wires to be laid down, the two inch pipe holding twenty-five wires; the three inch, seventy wires; and the four inch, one hundred and twenty. The pipes are laid down under the flag stones, at an average depth of twenty inches, and the joints are filled with lead. The cost of laying down three inch cast iron socket pipe for underground wires is 90 cents per yard, or $16·50 per mile. This includes the cost of the pipe and jointing with lead, the taking up of the pavement, putting the pipe in place and repaving. The cost per wire for drawing in the pipes depends somewhat upon the number of wires. The average cost of putting 60 wires in a pipe, including jointing and all other incidental work, is $2·80 per mile.

The cost of conducting wire for underground lines, consisting of copper wire, No. 18 gauge, covered with gutta percha to No. 7 gauge, taped and tarred, is $85 per mile. The total cost per mile for sixty underground wires is $71·30, or $117·06 per mile of wire.

The underground system in England gives comparatively little trouble, and is more favorably regarded than the overhead plan, the great detect of which is defective insulation.

For tunnels, copper wires, insulated with gutta percha, and then tarred, taped, and again tarred, are laid in a wooden trough, and attached to the wall. The trough has a cover coated with zinc and fastened with tie wire, instead of nails, to prevent injury to the wires.

In addition to the underground lines in the large towns, others have been laid down between London and the chief commercial and manufacturing towns of England.

Phosphor Bronze as a Material for Bearings.

The *Polytechnisches Centralblatt* publishes the following table, showing the results obtained with phosphor bronze axle bearings in Germany:

Kind of Bearing.	Composition in 100 Parts Alloy.	Comparative cost of 100 kilos Bearings, inclusive of melting expenses, loss, &c.	1 Kilo. Bearing Metal Runs.	Wear to 1000 Kilometers for four Bearings.	Cost of Bearing Metal per Wagon with four Bearings per 100 Kilometers.	Names of Railroads where Used.
Gun Metal	83 copper, 17 tin	960·8 marks	German Miles. 12,052	11·60 millimeters	0·811 cents	Austrian Railway
Gun Metal	83 copper, 18 tin	960·8	13,390	10·04	0·960	Grand Central Belge
Gun Metal	3 copper, 90 tin, 7 antim'y.	298·68	9,104	14·64	0·895	Amsterdam Railway
White Metal	6 copper, 86 tin, 8 antim'y.	293·40	11,760	11·95	0·931	Niederschlesisch-Märkische Bahn.
White Metal	61 lead, 16 antimony	118·56	10,338	12·30	0·145	Austrian Railway
Lead Composition	83 copper, 18 tin	330	87,226	2·35	0·881	Grand Central Belge
Phosphor-Bronze	95 copper, 5 tin	950 B	1,218	2·35	0·814	Grand Central Belge
Gun Metal on brake cars	83 copper, 18 tin	330	14,330	2·35	0·825	Grand Central Belge
Phosphor-Bronze on brake cars			107,410	9·31	169·48	Grand Central Belge

Breech Loaders in Europe.—The *Boersenzeitung* says that twenty-six different kinds of breech loaders are now in use in the various European armies. Many of these, though belonging to the same system, are made in different patterns, such as the Remington rifle in Sweden, Denmark and Greece; the Vetterli rifle in Switzerland and Italy; the Snider in England, Turkey and Holland, and the Dreyse in Germany, Roumania and Montenegro. The rifle with the smallest calibre is the Vetterli, of 10·4 millimeters; next comes the Vetterli repeating rifle 10·5; the Peabody, 10·5; the Amsler, 10·5; the Berdan, 10·6; and the Werndl, 10·9 millimeters. The calibre of the new German Mauser rifle, and also of the Werder rifle, as used by the Bavarian army, is eleven millimeters; while that of the old Dreyse rifle was 15·4, and of the Italian Cassano rifle, 17·5 millimeters. The writer thinks that the best rifles used in Europe for military purposes are the Mauser (German), the Werder, (Bavarian), the Berdan, (Russian), the Gros, (French), and the Beaumont, (Dutch). The Austrian Werndl rifle and the English Martini Henry have, he thinks, been surpassed by more recent systems. On the other hand, the new Dreyse rifle, which is now being tried in the school of musketry at Spandau, is regarded as being in many points even superior to the Mauser. The average rapidity of fire of the above rifles is twelve shots a minute, including the time occupied in taking aim.

The Helmbacher Forge and Rolling Mill.

The St. Louis *Railway Register* says:

These works are situated at Columbus street, and occupy about a whole block bounded by De Kalb, Lami and Barton streets. The mill, office and coal yard are on the southwest corner of the next block north. The main building and yards are 300x300 feet of frame with a truss roof. The interior is replete with all the modern appliances and appurtenances of a first-class forge and mill, and is in fact the only forge of any account or size west of the Mississippi. The mill contains two trains of rolls, two and three high for muck bar and merchant iron; four large engines and two doctors; one rotary squeezer; seven puddling and nine heating furnaces, the latter divided off for different purposes; five steam hammers, one of which is an upright Nasmyth hammer, having a stroke of six feet, and four helve hammers (Willard's patent); two batteries of three boilers each, also two boilers connected with the heating furnaces; four axle lathes; planers; screw cutter; one of Blake's large ore crusher and pulverizers in a house by itself, and worked by steam-power; three large shears for muck bar, and scrap cutting; one large eccentric-geared punch, and large circular saw for cutting iron. There are five forges with Root's blowers, and three Sturtevant fans for the heating furnaces, and in another department an immense roll lathe on which the company turn their own rolls. The works throughout are kept in first class order, and every facility is at hand for the handling of heavy forgings. One immense crane near the Nasmyth hammer is very strong, and has a capacity of twelve tons, and reaches from the heating furnace to the hammer; then there are smaller cranes with tongues attached. Shaftings have been made under this Nasmyth hammer weighing from 17,000 to 19,000 pounds, some of which are now in use on some of the principal river steamers on the Mississippi.

The specialty of this company is in the manufacture of all kinds of hammered shafting and axles; bar iron from three-quarters to four inch flats; rounds and squares from one-quarter to two and a half inches; angle iron, small T rails from 12 to 25 pounds, and general forgings for steamboat, railway and machinists' use. The company are very particular in all their work, and everything made by them carries its own certificate.

The bar iron is made from Missouri pig iron, with a mixture of Wisconsin and Tennessee pig iron, which acts as a neutral on the red short of the Missouri iron, and makes a very splendid grade for the purposes required.

The forgings and axles are all made from the best kind of wrought scrap procurable, and piles of which the company have constantly on hand and add to. Great care is also had with the axles made here; the wrought scrap is first made into billets, nine of which, of about two and a quarter inches thick each, are piled together, and after several heats and rolls are carefully turned into shape. About 2500 bushels of Illinois coal are used here daily, and over 250 men and boys have constant employment. The capacity of the works is about 10,000 tons of merchant iron and forgings per annum. The company is a joint stock corporation, which was incorporated in 1867 with a capital of $200,000, all of which is paid in.

The officers are M. Helmbacher, president; A. Helmbacher, treasurer and superintendent; and G. L. Goetz, secretary.

Large Production of Steel at Troy.—Capt. Robert W. Hunt, superintendent of Messrs. John A. Griswold & Co.'s Bessemer Steel Works, reports as follows: The largest week's work ever accomplished was made in the week ending Saturday, January 23d. The blast was put on the cupola on Monday evening, at 5 o'clock, and 19 heats made on that turn; Tuesday, day turn 20, night turn, 25; Wednesday, day turn 21, night turn 27; Thurs day, day turn 21, night turn 26; Friday, day turn 23, night turn 25; Saturday, day turn 25; making 232 heats; yielding 1140 1232 2240 tons of ingots. Thus in ten turns more heats were made than has ever been done by any other works in eleven turns. In the same time the blooming mill rolled 246 heats. The work was divided as follows: Monday night, 20 heats; Tuesday, day turn 25, night turn 23; Wednesday, day turn 24, night turn 29; Thursday, day turn 25, night turn 25; Friday, day turn 26, night turn 24; Saturday, day turn 25 heats. During the following week, ending Saturday, January 9th, 225 heats were made, yielding 1101 gross tons of ingots. On Thursday 55 heats, making 271 896 2240 tons of ingots, were turned out during the twenty-four hours. So these works are now champions of the world, on both weekly and daily production.

Reasons for Using our Goods.

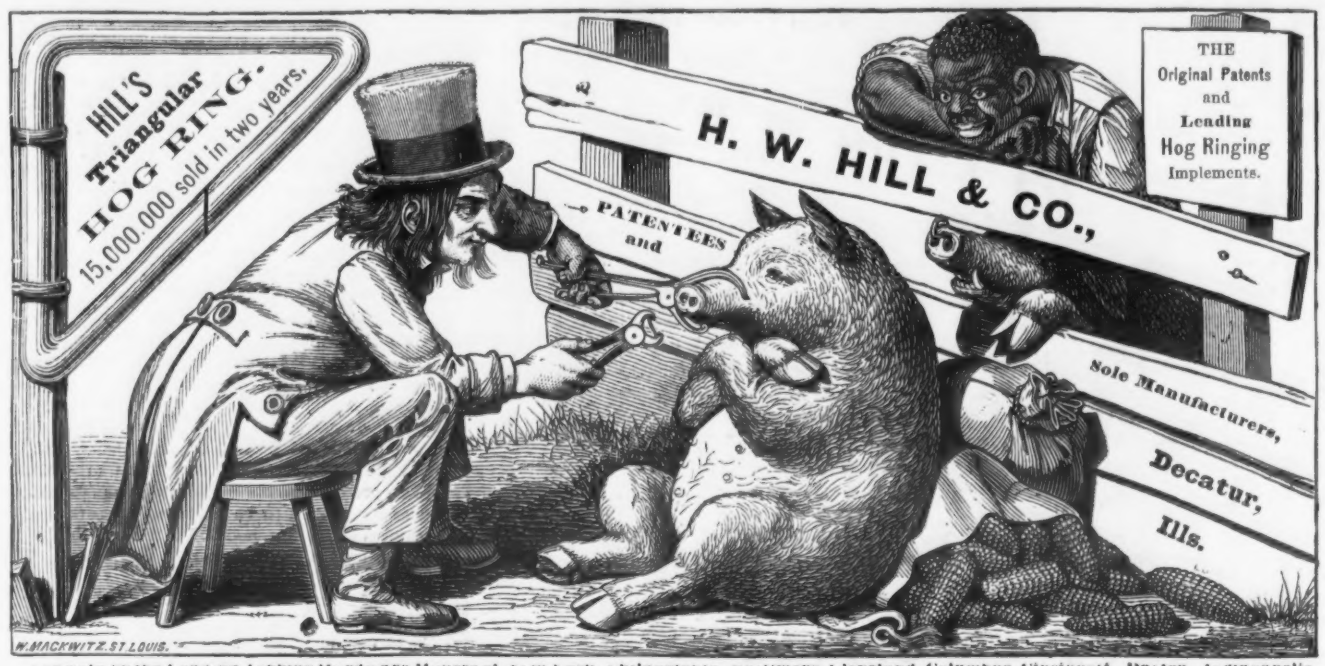
Hogs when ringed are prevented from rooting, and fatten quickly.

Pastures and clover fields are kept smooth and are not destroyed by the hogs rooting them up.

Feed lots in the winter are kept smooth, and corn that is otherwise rooted and tramped into the ground is saved.

The **Triangular Wire Ring, manufactured only by us,** is the only wire ring that can be inserted in the hog's nose with one grip on the **Ringer,** and is the only ring that will remain in a hog's nose, as it fits close, will not turn in for the joint to irritate the nose, is not liable to be torn out, and heals quickly.

No puncturing of the nose required to insert our ring.



For Sale by the Leading Jobbing Hardware Houses of New York, Philadelphia, Baltimore, Cleveland, Columbus, Cincinnati, Dayton, Indianapolis, Lafayette, Chicago, Milwaukee, Burlington, Davenport, St. Louis and San Francisco.

SOMETHING NEW.

We shall this present season make a **Heavy Tinned Wire Ring** that will not rust in the hog's nose. The strongest and best ring in the market.

Prices.

Ringers, retail	$1 00
" per doz	6 00
Rings per box (100) coppered wire	50
" per doz boxes (1200) "	3 00
" per box (100) tinned wire	60
" per doz. boxes (1200) tinned wire	4 00
Tongs or Holders retail	1 25
" " per doz	9 00

The coppered wire ring will be sent unless otherwise ordered.

Samples by mail postpaid on receipt of retail price.

Goods sent C. O. D. with privilege of examination before paying charges.

Net prices in quantities, circulars and posters mailed free.

Our advertisements are now inserted in over 1800 newspapers, published in every State of the Union, so that dealers will find a large demand created for our goods.

THE NICHOLSON FILE.

All Nicholson Files are cut with the Patent *Increment Cut*, an invention owned and controled exclusively by us, the file cut in this manner being Patented as a new article of manufacture, and differs from all other machine cut files (all of which have their teeth cut with equal spaces) by being cut with teeth slightly *expanding or increasing in size and space from the point*, thus avoiding the too great regularity of teeth common to all other machine cut files. The tendency of all cutting tools with teeth or cutters placed at regular distances from each other may be illustrated (to the machinist at least) by the fluted reamer—as it is well known that if a round reamer be made with (say 12) teeth whose spaces are equidistant, the hole reamed will *not* be round and smooth, but will approximate to a hexagon in shape. Whereas, if the same number of teeth be made of irregular distances, the hole reamed will be both round and smooth. The same is true of a file, hence the necessity of its having teeth at unequal distances, and to which we have applied the name of Increment Cut File, which possesses all the advantages of hand cut work, and the accuracy and uniformityof machine work. It is now upwards of seven years since this File was introduced to the public, and the demand has increased until our production is undoubtedly treble that of any File manufactory in the country.

We put all files under seven inches in boxes of either one-half or one dozen each. These boxes are neatly arranged, and open on the end, on which the kind is plainly marked with printed labels, acknowledged improvements on the old methods.

The "*Increment File*" is not an experiment, but an established fact, and already has acquired a legitimate demand or upwards of 500 dozen per day. We employ no *regular Travelers*, but our goods may now be found in the hands of the principal jobbers and dealers throughout the country.

Prices and terms will be forwarded on application to

NICHOLSON FILE COMPANY,
Providence, R. I.

USE THE BEST.

AMERICAN FILE COMPANY

Pawtucket, R. I.

The American File Company have the exclusive right to use the Bernot process for cutting files By this method all the advantages of hand cutting are secured, together with an accuracy unattainable in hand work. They are the only manufacturers who employ machinery for testing files and steel.

Goods of all known manufacturers have been repeatedly tested, and interesting tables have been compiled showing the working qualities of files made by different makers, and of files made from different steels, and with various shapes and angles of tooth They have thus reduced the manufacture of files to an exactness and perfection with a uniformity of result, as they believe, never before attained. No file, foreign or domestic, that they have ever tested, has equalled the performances of their own goods taken at random from their stock. Their machines are capable of the most delicate adjustment, and can produce the very finest work known to the trade. Special files made to order. Prominent file manufacturers are having their best goods from our works.

Price lists and information furnished on application.

AMERICAN FILE CO., Pawtucket, R. I.

FILES AND RASPS.

XTRA QUALITY,
MADE FROM THE BEST
IMPORTED STEEL
BY THE
Auburn File Works,
AUBURN, N. Y.

JOHN ROTHERY'S Celebrated Hand-Cut FILES,

Made of Best English Cast Steel.

WALSH, COULTER & FLAGLER, Sole Agents,
83 Chambers and 65 Reade Streets, N. Y.

W. F. SHATTUCK & CO.,

113 Chambers and 95 Reade Street, New York.

MANUFACTURERS OF AMERICAN HARDWARE.

Cues & Tuft's Pat. Wrenches.
Axe, Pick, Sledge & Hammer Handles.
Hatchets, Auger, Chise & File Handles.
Mallets. Pat. Boot Jacks.
Shiplets and Gimlet Bits.
Augers and Auger Bits.
Cocoa Nut Dippers.
Mouse Traps. Wire Selves.
Scale Beams.
Patent Tap Borers.
Tool Chests.
Climax Horse Collars.
Brandage Horse Nails.
Maguire's W'r'd Iron Goods.
Shattuck's Platform Counter Scales.
Yaw's Cow Bells.
Axes, Picks and Hatchets.
Hammers. Crow Bars.
Sad Irons.
Boring Machines.
Cast Iron Hatchets.
Coffee Mills.
Star Steel Spoons.
Stocks and Dies.

DEAN'S New Patent (1873)
Screening Scoop SHOVEL

For Coal, Coke and Coal Ashes, and other Substances.

The largest frames are 12 by 18 inches, with seven bars, and are made of the Best Malleable Iron. They are, or can be, wired between bars by an arrangement of holes a quarter of an inch apart, by an ordinary person, to screen any size substance desired. They are warranted to be the most durable and practical Screening Shovel made, or money refunded.

Reference—All New York Gas Companies and Hotels.

☞ Smaller sizes on hand.

Please address orders to

A. SEE & SON,
N. Y. Shovel Works,
1358 Broadway, N. Y.

Price: Largest size $30 per doz., and upwards, according to size of spaces.

Clement & Hawkes Mfg. Co.,
Manufacturers of
SHOVELS,
Planters' Hoes, Trowels and Machinery.
Northampton, Mass.
☞ Send for Circular and Price List.

Schweitzer Mfg. Co.,
57 Reade St., N. Y.
IMPORTERS & JOBBERS.

Established 1816.

Peter A. Frasse & Co.,

95 Fulton Street, New York,

SOLE AGENTS FOR

Thomas Turner & Co.'s Suffolk Works,

SHEFFIELD.

FILES AND HORSE RASPS,

And Importers of

STUBS' FILES, TOOLS & STEEL,

W. J. Davies' Sons' London Emery Cloth,
HUBERT'S FRENCH EMERY PAPER.

EVERY FILE WARRANTED.
Equal to the
BEST.

Western Files. Western Files.

Works, Beaver Falls, Pa. Office, 96 Chambers St., N.Y.

Western Files. Western Files.

LARGEST CAPACITY
Of any File Works in the World.

In the face of strong prejudice against American files, this brand has earned a reputation second to none. The trade in all sections testify to their excellence. We confidently offer these files as superior in every respect and cheaper than any first-class file in the market. A trial will confirm their reputation.

Backus's Patent Bit Brace

AND

Angular Extension BORER.

Q. S. Backus,

SOLE MANUFACTURER OF

ANGULAR EXTENSION BORER.

Salesroom, 82 Chambers St., N. Y.

This tool can be used in any brace, at any angle, and also for straight work. Is the best and most convenient tool of its kind ever offered to the public. Eight thousand sold the first year.

Also Manufactures the Straight Extension

Backus's Pat. Improved Bit Brace.

The socket is arranged so that the strain does not come on the jaws, but on the square hole which fits the shank of the bit. The jaws attached to the sleeve hold the bit firmly in the square, and center it truly. The sweep is of wrought iron. The general finish of the stock is good. Its appearance is neat. Mechanics who have used it unanimously pronounce it superior to all others; and we offer it to the trade as the strongest, most simple, and quickest operating brace in the market. We manufacture five sizes. The number of inches of sweep corresponds with the commercial number of the bit.

BUSINESS ITEMS.

PENNSYLVANIA.

The extensive ship yard of the Philadelphia & Reading Railroad Company, at Port Richmond, Philadelphia, is completed, but not yet in operation, owing to difficulties in regard to closing certain proposed streets running through the property. These have now been overcome, and it is presumed operations will commence in the near future, giving employment to a large number of men and adding to the consumption of iron.

The Pennsylvania Railroad Company has a car built and used expresely for the purpose of testing the correctness of the track scales along the line. The body of the car is of iron, and it is furnished with weights, by which the scales can be proved. It is started out from Altoona once each month, and makes the round of the road and branches, adjusting all the scales.

Five Mogul engines are now being built for St. Louis, at the extensive locomotive works of Dawson & Bailey, Connellsville. They are of the 8 wheel pattern, weighing 24 tons, 3 foot gauge. The boilers are 44 inches in diameter, made of Sligo iron, 7-16 thick and double riveted; cylinders 14 in. diameter, cast in one piece, having 22 in. stroke; the fire boxes are 54x20 in., and made of homogeneous steel.

The Lackawanna Iron and Coal Company have blown in another blast furnace. Two are now in blast and three out. All five of the company's furnaces have a capacity of about 65,000 tons per annum, the largest being 23 feet across boshes, and the remaining four 18 feet respectively.

MASSACHUSETTS.

There is a steadily growing export demand for American machinery. The Burleigh Rock Drill Company, of Fitchburg, Massachusetts, have just shipped three large air-compressors to furnish motive power for running drills and pumps in the silver mines among the mountains of Peru and Chili.

MAINE.

The Portland Machine Works are making a pair of chilled rods for grinding feldspar for fire-brick in a factory owned and operated by Hon. John Lynch.

T. B. Hussey & Son carry on quite a business on the Sandy Stream, in the eastern part of Unity, manufacturing agricultural implements and stoves. They turn out about three hundred and fifty finished plows, and the castings for some five hundred more, and three hundred stoves annually. Their foundry and shops are conveniently arranged and economically managed.

The Portland Company Works have a good quantity of work at present. They are making the machinery for several porgy steambcats, one for J. Wilson & Co., of Fall River, and one for Will & Co., Long Island, N. Y. A large fly-wheel, weighing about 25 tons, for the Rolling Mills, has just been completed. They have just received orders for six engines for the Grand Trunk, and one for the St. Lawrence and Atlantic road. They have in their shop six engines of the Grand Trunk, to be changed from broad to narrow gauge; also two for the St. Lawrence and Atlantic road. They have over 300 men at work, and expect to be able to keep them employed through the winter.

OHIO.

Reiter & Conley, of Ironton, are constructing two blast furnaces, on the Ferle principle. These furnaces will be ninety feet high, with seventeen feet bosh. The boiler stack is of iron, and is one-hundred and eighty-six feet high, eighteen feet at the base and ten feet at the top.

A plow factory has been nearly completed at West Toledo, by Mr. N. Birch, who will remove from North Fairfield in that State. The cost will be not far from $13,000.

The North Toledo Perkins Portable Engine Company manufacture a six horse-power machine daily at their new establishment. Forty men are employed at present.

The Painesville *Telegraph* has the following in regard to the proposed rolling mill at Fairport, the shore terminus of the Painesville and Youngstown Railroad. For some time past parties from abroad have been in correspondence, and held interviews with some of our citizens touching the erection of a rolling mill at Fairport. The matter has now assumed such shape that the details of the enterprise will soon be submitted to the property holders of Painesville, for their consideration and approval. Those moving in the matter are prominent responsible business men, who, if they find sufficient encouragement, will at once commence the work, and have the mill running by the middle of the present season.

One hundred thousand dollars have been subscribed to the capital stock of the company who contemplate purchasing Monitor Furnace and lands; and an additional subscription of a like amount, which seems pretty nearly secured, will enable the new company to commence operations. The intention of the new company seems to be to run the present furnace (iron stack 59 feet by 13 feet) in connection with a muck bar mill. The real estate embraces 826¼ acres in fee simple and 110 acres in mineral rights. A coal vein, represented good for smelting purposes, has been opened 55 feet directly above the furnace stack.—*Ironton Register.*

ILLINOIS.

O. W. Potter, manager of the North Chicago Rolling Mill Company, is reported to have stated that the gross earnings of the mills for the year 1874 will reach $4,000,000. Mr. Potter also stated that the contracts already received will keep the North Side Rolling Mills in operation up to Nov. 1, 1875, in the manufacture of steel rails alone, thus giving employment to more than 1000 men, while, in all probability, the demand for iron will be sufficient to keep at work the remaining 600 operatives on the company's rolls.

The cultivator and wagon factory of L. & H Smith & Co., at Pekin, was destroyed by fire on Saturday, Jan. 23. Loss on building, $20,000; on machinery, $20,000; and on stock, $40,000. Among the insurances are $3000 each in the Lycoming, of this State, and Farmers', of New York.

OREGON.

The iron works on the Willamette River are running to their full capacity, and for a State where the production of ore is a comparatively new industry, they make a good showing. The furnace is charged every half hour with about 1000 pounds of ore, 100 pounds of limestone and 30 bushels of charcoal. The cost of each ton of pig iron produced is about as follows: Iron ore at furnace, $10·75; 150 bushels charcoal, $13 50; limestone, 500 pounds, $5; superintendence and labor, $4; total, $33·25.

CALIFORNIA.

The Selby Smelting Works, located at San Francisco, are said to be the largest of the kind in the United States, having a capacity for refining over 2000 tons rebellious ores per month, separating therefrom the silver, etc. These ores, crude bullion, come from Eureka, Cerro Gordo, and other notable mines of the Pacific coast. Only about 10 per cent. of the refined lead extracted is used on that coast, the remaining 90 per cent. being shipped East for a market. Of this surplus, 7172 tons Selby Pig Lead has been shipped this year to New York and 222 tons to China, and more of the surplus is being sent off, as occasion offers, for a low rate of freight as ballast for steamers, etc. There are only about 120 tons refined lead per month sold or used on this coast. The Selby Shot Tower supplies nearly all the Drop Shot consumed on the Pacific slope, and the same parties furnish nearly all the sheet and pipe lead used on this coast, having quite a monopoly of this trade. The "Selby" Pig Lead has attained a high reputation in New York for its purity in the matter of white lead paint manufacture, and this, by the way, is an interest that we, on this coast, ought to have inaugurated at an early day.

Street cars for San Francisco are being manufactured in the railroad shops in Sacramento in that State.

MISSOURI.

The St. Louis Stamping Company have quite extensive works for the manufacture of stamped, japanned, tinned iron, planished and galvanized articles. Their annual productions amount to about $400,000. The company have in progress of erection the necessary facilities for the production of granite enameled ware.

The safe factory of Beard & Brothers, at St. Louis, was burned Jan. 22.

The St. Louis stove foundries last year turned out 90,000 stoves. The average value a piece was about $14.

MICHIGAN.

The puddlers at the Marquette and Pacific Rolling mill are on a strike, the company having given notice of a reduction of wages. As a consequence the mill is again idle, and will so remain until the men make up their minds that it is more profitable to work at reduced rates than not work at all.

A new Iron Mining Company has been organized near Clarksburgh, named the "Union Iron Company," and 1000 acres of rich mineral land has been set apart for this purpose. Late explorations on this land has developed a large body of ore, and the prospects are favorable for a good working mine. The company is officered as follows. R. S. Fay, of Boston, president; Edward Breitung, vice president; directors, H. J. Colwell, A. A. Ripka, Jay C. Morse, James Pickands and Wm. L. Wetmore; secretary and treasurer, C. G. Blake.

The Escanaba Furnace has lately been blown out. The wood contracts have been cancelled, and 800 or 1000 men thrown out of employment.

The rolling mill furnace, Marquette, is working with its full force, and is turning out from 35 to 40 tons of A No. 1, and No. 2, foundry iron per day. The ore used is the Lake Superior specular and the Rolling Mill hematite. So long as the fuel lasts the furnace will remain in blast.

Henderson's Hydraulic Car Brakes.

A trial of the Henderson hydraulic car brake was made a few days ago on the Chester and Philadelphia Railway. In the first test the train was stopped while going at the rate of 30 miles an hour, on track with a down grade of 15 feet to the mile, in 22 seconds, after running a distance of 870 feet. At the dead stop the steam gauge pressure was 105 pounds, and the brake gauge pressure was 90 pounds.

In the second test the brakes were put on when the train was running at 35 miles an hour, and came to a dead stop in 22 seconds, a distance of 720 feet from the point where the brakes were put on. The steam gauge pressure at the dead stop was 104 pounds, and the brake gauge pressure 95 pounds. The third test was on a down grade of over 30 feet. The train was running at the rate of 30 miles an hour, and was brought to a dead stop in 31 seconds, at a distance of 780 feet. The steam gauge pressure was 92½ pounds, and the brake pressure at 90 pounds.

Most of the company then left the train and closely watched the application of the brake. In three tests the train was stopped each time on a level track within from twenty-five to fifty feet of its own length, in from 16 to 18 seconds. The last test was made with the train going at a speed of over twenty miles, and it was stopped in 18 seconds. The tests were made without reversing the engine, and under several disadvantages. The day was clear, cold, and frosty, and with a slight wind, the usual practice of dropping sand on the rail was of no use. Another point was that through the changing of one of the caps, taken off for the examination of the experts present, it was found necessary to shut off one brake, thus losing one-eighth of the power.

A very noticeable feature of the brake to passengers seated in the car, was the fact that there was very little jar and no jerks. The action of the brakes in their application is almost instantaneous. The tests, even under the various disadvantages, were said to be very good. In winter, to prevent the water from freezing, a proportion of glycerine is mixed with it, and and this obviates what would otherwise be a great difficulty. The power used is derived directly from the boiler of the locomotive, and is transmitted to pressure boxes by a hydraulic press operated by a duble acting steam cylinder

GEORGE GUEUTAL & SON,

39 West 4th St., New York.

IMPORTER OF

Wood Screws, Steel in Sheets,

BAND SAWS, TOOLS FOR BRAZING, &c.

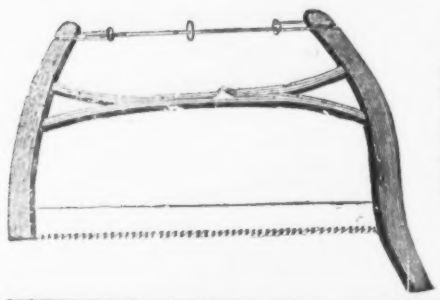
Bed Screws, Pin Hinges, and Wire Nails a Specialty.

H. W. PEACE,

MANUFACTURER OF

Saws of all kinds.

FACTORY, WILLIAMSBURGH, N. Y.



Elliptic Forked Saw Frame.

Patented June 28th, 1870.

The annexed engraving represents my ELLIPTIC FORKED SAW FRAME, which commends itself to the trade for its simplicity of construction. The Forked Brace being all in one piece, without any center bolt, secures for the Frame great strength and durability. These Frames are put up with my best Webs, marked "No. 40, Harvey W. Peace."

HARVEY W. PEACE,
Sole Proprietor & Manufacturer,
VULCAN SAW WORKS.
WILLIAMSBURGH, N. Y.

THE SILVER STEEL DIAMOND CROSS-CUT SAW.

$1.50 Per Foot.

Patent Secured

PATENT HANDLES AND GAUGE INCLUDED.

THIS new Saw, which is destined to take the place of all Cross-cut Saws in point of **SPEED AND EASE**, is manufactured by **E. C. ATKINS & CO., Indianapolis, Ind.**, who are the

SOLE MANUFACTURERS FOR THE UNITED STATES.

So confident are we that this is the best Cross-cut Saw in the market that we CHALLENGE THE WORLD. Orders promptly filled.

E. C. ATKINS. H. KNIPPENBERG.

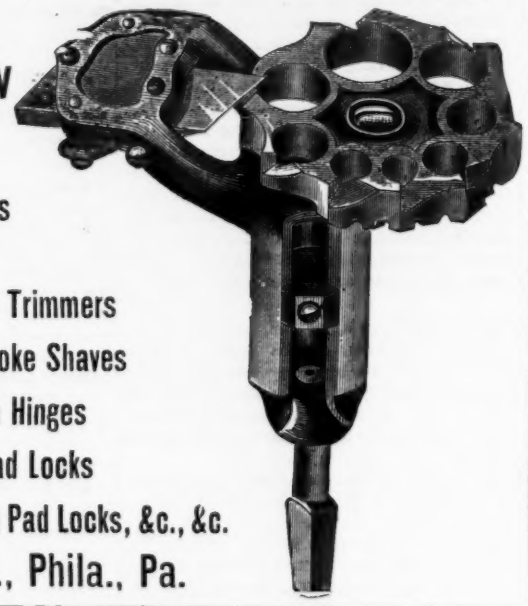
E. C. ATKINS & CO.
Saw Manufacturers and Repairers, Indianapolis, Ind.

Lloyd, Supplee & Walton,

HARDWARE FACTORS.

MANUFACTURERS OF

Bonney's Hollow AUGERS.



Stearn's Hollow Augers
and Saw Vises
Bonney's Spoke Trimmers
Double Edge Spoke Shaves
Adjustable Gate Hinges
Scandinavian Pad Locks
Flat Key Brass and Iron Pad Locks, &c., &c.

625 Market St., Phila., Pa.

QUACKENBUSH, TOWNSEND & CO.,

IMPORTERS AND WHOLESALE DEALERS IN

HARDWARE, CUTLERY, &C.,

59 and 61 Reade Street, N. Y.

DEPOT FOR

THOMAS JOWITT & SONS,
(Sheffield, England,)
Celebrated FILES AND HORSE RASPS.
Rough and Ready and
CLIPPER SCYTHES,
Warranted.

THOS JOWITT & SON TESTED CORPORATE MARK

"BEAVER"
(American)
FILES AND HORSE RASPS
"WIDE AWAKE"
AXES.

[atented] And Exclusive Manufacturers of the [March 4, 1873

McKINNEY MFG. CO., Hamilton, O.

Wrought Butts,
Strap & T Hinges.
Send for special discount sheets.

METROPOLITAN PLATING WORKS.

Every description of

Nickel, Gold & Silver Plating.

By a Superior Process. Finish & Color Warranted.

10 & 12 Reade Street, (Second Floor,)

Corner Elm. NEW YORK.

H. HAMMOND,

Manufacturer of

CAST STEEL HAMMERS,
Gun, Machine & Hardware, Drop Forgings.
Hartford, Conn.

E. M. Boynton,

80 Beekman Street,
NEW YORK,
Manufacturer of

Saws of all kinds.

Also Sole Manufacturer of

LIGHTNING SAWS.

Two Direct Cutting Edges, instead of one Scraping point.

Note extra steel and durability over the old **V**, outlined on **M** tooth.

Telegram Dated Oct. 1st, 1874.

STATE FAIR, EASTON, PA.

To HENRY DISSTON & SONS:

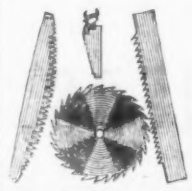
Philadelphia, Pa.

I want you to publicly test that challenge on Cross Cut Saws. Name time and place within thirty days. American Institute preferred. E. M. BOYNTON.

E. M. Boynton gave on Wednesday of last week an exhibition of what his Lightning Saw could do at the Pennsylvania State Fair, in which two men sawed through a sound oak log, 16 inches in diameter, in 17 seconds. Mr. Boynton informs us that his export trade is increasing, he having lately made large shipments of his saws to Australia and other distant markets.—*The Iron Age*, Oct. 8, 1874.

For fuller report of this exhibition see the *Easton Morning Dispatch* of Oct. 1st, 1874.

Henry Disston & Sons cannot furnish Lightning Saws. Why do they imitate mine?



J. FLINT,

Manufacturer of

ALL KINDS OF

SAWS

And Plastering Trowels,

ROCHESTER, N. Y.

A large Stock of **Cross Cut Saws** constantly on hand. Orders filled promptly. **Dietrich's Double Handle One Man Cross Cut Saw** made with any kind of tooth desired. Our patent method of grinding Hand Saws makes them superior to any in the market. Send for Illustrated Price List.

Putnam's Government Standard

FORGED

HORSE SHOE NAILS.

Manufactured from the best of **NORWAY** Iron, nd warranted to give entire satisfaction.

S. S. PUTNAM & CO.,
NEPONSET, MASS.

Rogers' Self-Sharpening HOE.

The best Hoe in market. It will not batter or break. Wears itself sharp. Will last twice as long as any other Hoe, and is warranted to cut the "Bolles Hoe" or any Hoe in market.

For Sale at Manufacturers' Prices by

RUSSELL & ERWIN MFG. CO., - - New York.
BYRNE & FITZSIMONS, - - - - Albany, N. Y.
KENNEDY, SPAULDING & CO., - - Syracuse, N. Y.

A. PARDEE, Hazelton, Pa. J. G. FELL, Phila.

A. PARDEE & CO.,

303 Walnut St.,

PHILADELPHIA

MINERS AND SHIPPERS OF

Lehigh Coals.

The following superior and well-known Lehigh Coals are mined by ourselves, and firms connected with us viz.

A. Pardee & Co. { HAZLETON. CRANBERRY. SUGAR LOAF

G. B. Markle & Co. { JEDDO. HIGHLAND.

Pardee, Bro. & Co. LATTIMER

OFFICES:

WM. LILLY, Mauch Chunk, Pa.
WM. MERSHON, Agent, 111 Broadway N.Y
WM. H. DAVIS, Agent. Easton, Pa

WHEELER, MADDEN & CLEMSON,

Manufacturers of Warranted Cast Steel

SAWS

of every description,
including
Circular, Shingle, Cross Cut, Mill, Hand, Roberts' and other Wood Saws,
&c., &c

Cast Steel Files

of the well known brand of

Wheeler, Madden & Clemson.

FACTORIES:

Middletown, Orange Co., N. Y.

BRANCH OFFICE:

97 Chambers Street, New York.

BRUNDAGE FORGED HORSE NAILS,

Manufactured from
BEST NORWAY IRON,
by BRUNDAGE & CO. Sold by
WHEELER, MADDEN & CLEMSON
Middletown, Orange Co., N. Y.

I make a specialty of the LARGEST SIZES of **Circular Saws**, and call particular attention of lumber manufacturers to the following points of excellence:

Evenness of Temper.—The peculiar structure of my furnace subjects all parts of the saw to a DEAD heat, and when dipped in the oil bath secures perfect uniformity.

Perfect Accuracy in Thickness.—My saws are ground on a patent machine, automatic in its operation, grinding off the thick places upon the plate before the thinner parts are reached, and when the saw is removed BALANCES PERFECTLY, which is proof positive of the right accomplishment of the work.

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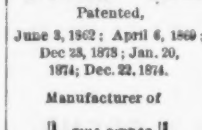

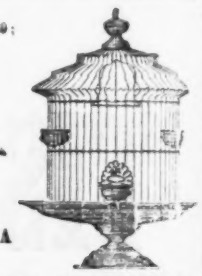

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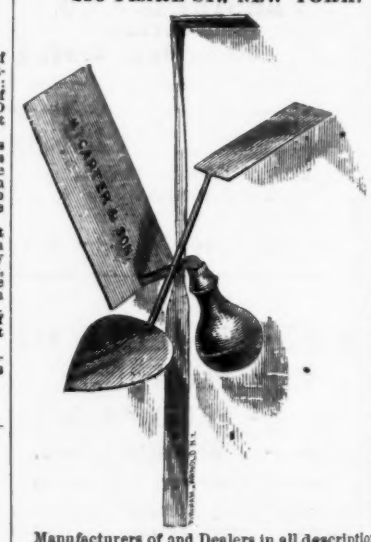

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" 58,	"		" 7 25	" 74,	"		"
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PHILADELPHIA CORRESPONDENCE.

PHILADELPHIA, Feb. 8, 1875.

Very little of interest has transpired during the week under review, in trade circles especially. Some little excitement has been occasioned by a rumored combination of furnace owners to advance the price of pig iron, but this, from the condition of affairs, is highly improbable. The trade is just emerging from a prolonged period of depression, such as it scarcely ever before experienced; furnace owners are agreeably surprised at the slight improvement in demand which now exists, and having made their preparations for cheaper stock and labor are exceedingly happy to meet customers at any price which will afford them even interest on their capital. Any advance in the price of pig iron, and such is very likely within a limited extent, must be due to an actual demand, and as such is to be regarded as legitimate. Nothing, however, can more clearly indicate the great reduction in both cost of production and selling price of iron products, than the bids offered the Cincinnati Southern Railroad Company this week, and quoted in *The Iron Age* last issue. Here were offered thirteen bids for iron rails, and seven for steel, for a quantity of 25,000 tons iron, and 22,000 tons steel rails, of which the highest bid for iron was $62·60, and the lowest, $48 per ton, an average of the thirteen bids being $55·24. For the steel rails the highest bid was $82, and the lowest, $72, an average being $78·36 per ton. These prices are, however, nearly, if not quite, 40 per cent. below rates which would have been quoted on February 1st, two years since, and thus show the tremendous shrinkage in values which has obtained in this short period. Nor is this shrinkage confined to rolled iron or steel, by any means, but has extended to other forms, as is shown by the following: Bids were opened by the Water Department of this city during the past week for iron castings, pipe, etc., and contracts awarded at the following rates, viz.: For 300,000 pounds of iron castings at 2½ cents per pound, for four, six, eight, ten and twelve inch pipe, contracts were awarded; for four and six inch at 1·74 cents, and for eight, ten and twelve inch, at 1·72 cents per pound, and also for sleeves and branches at 2·9-16 cts. per pound. These prices show even a greater shrinkage, when compared with those of 1872 and 1873, before the panic, than the rails above referred. A contract for 17,000 pounds of brass castings was awarded at 17 cents per pound, which indicates that metals have, in some degree, sympathized with iron in the great reduction. All these prices show clearly that we have about reached the ultimatum in reduction, and that from this time on slightly higher rates must rule. The reduction of wages continues, although the rates have been materially cut already. Thus we find that the Eastern iron manufacturers, in session at Boston on the 28th, resolved that a further reduction in wages was absolutely necessary to enable Eastern manufacturers to compete with those of the West. From Pittsburgh, also, we learn that the puddlers are beginning to accept the terms of the reduction demanded, and thus to acknowledge as enevitable a lower scale of wages. Notwithstanding the complaint that the cost of living has not decreased in proportion to the reduction of wages, it appears that this expense is not very materially greater than in foreign countries where labor is not nearly so well paid. This is well established, so far as the Eastern section of the country, the most expensive portion, is concerned, by the following extract from the last report of the Labor Commission of Massachusetts, viz:

"One dollar will buy twenty pounds of flour in Boston, one or two pounds more in several European seaports, but the same or a considerably less in a majority of the places compared. In Boston one dollar will buy 5·56 lbs. of fresh beef, roasting piece. In no place in England will it buy so much by a pound or more, and in Europe still less, Copenhagen being the only place given where it will buy more. Butter in Europe averages a pound more to the dollar than here, cheese less by more than that except in a few spots. As for potatoes, they are cheaper here than in England, and dearer than in Ireland or Germany. Seven or eight pounds of pork for a dollar are sold here, and not much more than half as much can be obtained for that sum in England or Europe, and nowhere as much. In rice, milk and eggs they have the advantage of us. Tea costs less here than in England, but more than on the Continent. With coffee it is about the same, though the difference is little. In sugar, the British are a little better off, the Continentals a good deal worse. Coal is cheaper here than in Germany, and dearer than in England. Merrimac or common prints are cheaper here than in England or Europe. Boots are about the same here as there. There are about two or three places in England or the Continent where brown sheetings are cheaper than here, while in brown shirtings the foreigners are better off. Rent for four roomed tenements is from two to four times cheaper in Great Britain and on the Continent than in Boston; in Austria, fifteen times cheaper. Board also is from one and a half to twice as cheap in Europe and Great Britain as in Boston."

It is to be noted that the expense of rent, always the heaviest item to the operative, continues here to rule far higher than abroad, and necessarily must do so. It is, therefore, clearly to the interest of all large works, corporations and railroad companies, extensively employing labor, to provide cheap and suitable tenements for their operatives, and at as low a rate of rental as is consistent with the investment in the property. From all points it is evident that we are, in the iron trade, undergoing a transition not only from the era of high prices and extravagant management, but also from that of iron to steel for very many uses in which iron has hitherto ruled. This the rail mills have already discovered, and where steel was sold with difficulty, and iron with ease, the conditions are now reversed, and steel works are well supplied with orders, as is shown by some of the Bessemer works east of the Alleghanies bidding for such an order as 22,000 tons for the Cincinnati Southern Railway, while the iron mills are seeking customers at scarcely margin enough to pay for production. We are, therefore, nearing, or have reached, the period when we only require some more economical process of producing cheap and good steel in large quantities to insure its adoption in very many branches of industry where iron has ruled. Under this state of affairs the only expensive element in production, that of coal, cannot long continue at present cost, either through high wages to miners, or high freights to carrying companies.

The full report of the voyage of the City of Peking from New York to San Francisco, has just been received through the California press, and shows that although unfortunate in loss of portions of her screw, the ship came fully up to her requirements. The whole passage occupied 90 days, during which the ship ran 14,403 miles, of which distance she made but 506 miles with a perfect screw; 2587 miles on but three arms, and 11,310 miles on but two arms of her propeller. These accidents to screws, by the breakage of arms, are becoming so common as to require investigation. The Pennsylvania lost two arms in her first passage, and again in heavy weather this winter; several other steamers report similar accidents, and as it is of comparatively late occurrence, was not before reported, it is a class of accident evidently due to some cause which is attributable to material used, or workmanship employed. The City of Peking was visited and examined with great admiration by the Emperor of Brazil, while in the harbor of Rio Janeiro, and will doubtless be the means of bringing orders for iron ships from that country, which we now supply with locomotives, to the exclusion almost of foreign competition. American industry is thus steadily gaining ground abroad to our certain future benefit.

Protecting Pumps from Frost.

A correspondent of the Ohio *Farmer* offers the following good suggestions: One or two nights recently, Jack Frost gently hinted that we ought to be ready for him when he comes in earnest. On going to the pump in the morning, I found the water frozen inside so that it required quite an effort to break the ice. But I am ready for him, and I want to tell the readers of the *Farmer* how I managed it.

At home, on my father's farm, we had no well or pumps—good springs being abundant. Hence it is I got caught the first winter after I married and moved on to a farm of my own. I was not used to freezing pumps, and so one bitter cold morning I found both punps—the one at the house and the barn pump—locked tight. I will not describe the annoyance that followed—every farmer who has a pump has had some experience of the kind at some period of his life.

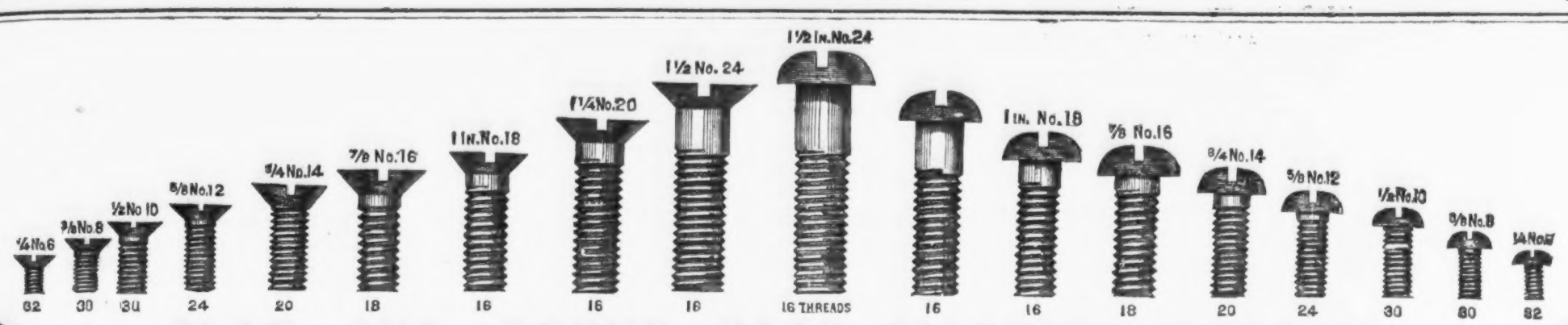
It took three days to thaw those pumps out, and I was compelled to take my stock to a neighbor's' half a mile away, to water them, and also had to obtain water at the same place for household use. I never got caught the second time on the same trick. As soon as the pumps were clear of ice, I procured two good brass faucets, and boring holes in the pumps, five feet below the platform, I inserted the faucets in them securely. I then procured a narrow strip of board of sufficient length, and bored a hole in one end large enough to slip over the handle of the faucet. With this I could turn the handle easily, either way; and I have never had any trouble since.

Some have a plug, simply, within reach of the hand, below the platform; but this is insufficient in the coldest weather, beside being inconvenient. The faucets are better every way. Care must be taken to provide enough water before turning it off, to start the pump in the morning.

I use these faucets also in warm weather when the pumps have been standing undisturbed in the hot sun half a day. The water above the platform is then unfit for use, but it is usually pumped into the trough for the tired, thirsty horses, when the owner knows that a sip of it would be as good as an emetic for himself.

We find in the Berlin *Industrie-Blatter*, of recent date, a description of a self-acting electric steam-whistle for locomotives, recently introduced on the Northern Railway of France. The object intended is to give warning of danger when fog or darkness renders ordinary signals indistinct, and to attract the attention of the engineer if negligent and unwatchful. An extra whistle is attached to the boiler of the locomotive. The opening through which the steam should escape is closed by pieces of metal attached to a strong spring which tends to open the escape, but is held back by a piece of soft iron, the armature of an electro-magnet. When now a current of electricity passes around the electro-magnet the armature is drawn down and the spring released which sets the whistle screaming. The method of connecting the current is as follows: One end of the wire which forms the helix is connected with the engine, and through the wheels and rails with the earth. The other end is connected with an insulated metal brush placed so far beneath the engine that its copper bristles, so to speak, project an inch or two below the lowest part of the train between the tracks. At each signal station there is a "contact maker" between the rails so fixed that it will be touched by the copper brush, and by no other part of the locomotive or cars. It has on its copper end a copper plate connected with the positive pole of a battery, but this is usually covered with a non-conducting plate. If the road is clear the brush strikes the non-conducting plate and all is quiet. As soon as the danger signal is set, the non-conducting or insulating cover is removed from the brass plate of the contact maker, the current passes around the magnet, the armature falls, and the spring is released, the steam escapes and blows the whistle for down brakes! Experiments have shown that the contrivance works well even at a speed of 68 miles per hour.

It would be an easy matter to connect this with the block system in use on our best roads, so that each train would telegraph back its whereabouts to the train following, if in dangerous proximity. In addition to sounding a whistle, we think the principle, which is not new or foreign, might be employed to apply the air brakes, or even close the throttle valve should the engineer be asleep, drunk or absent.



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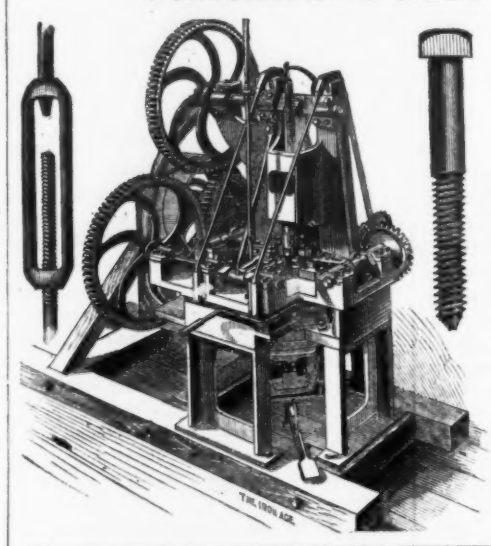

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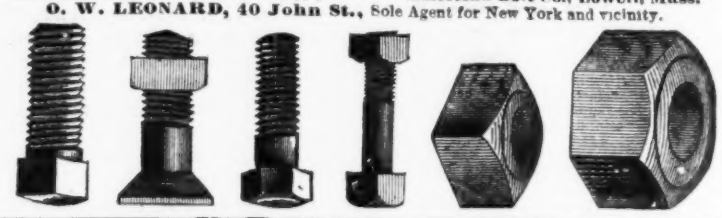

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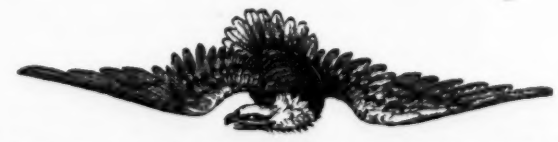

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The Iron Age.

New York, Thursday, February 11, 1875.

DAVID WILLIAMS - *Publisher and Proprietor.*
JAMES C. BAYLES - *Editor.*
JOHN S. KING - - *Business Manager.*

NEW YORK, January 2, 1875.

Until the 1st instant the postage on newspapers was paid by subscribers at the office where the paper was received, the yearly rates on the different editions of *The Iron Age* being as follows: Weekly, 40 cents; Semi-Monthly, 40 cents; Monthly, 24 cents.

Under the provisions of the new postal law, which went into effect on the 1st instant, prepayment at the office of mailing is required, at the rate of two cents per pound for the Weekly, and three cents per pound for the Semi-Monthly and Monthly, which will make the postage as follows on the different editions: Weekly, 50 cents; Semi-Monthly, 30 cents; Monthly, 15 cents.

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City Subscribers will confer a favor upon the Publisher, by reporting at this office any delinquency on the part of carriers in delivering *The Iron Age*; also, the loss of any papers for which the carriers are responsible. Our carriers are instructed to deliver papers only to persons authorized to receive them, and not to throw them in hall ways or upon stairs; and it is our desire and intention to enforce this rule in every instance.

CONTENTS.

Our Internal Ship Canals.

We have heretofore referred to the progress made in the improvement of the Hudson River and the proposed Champlain Ship Canal, as one of the most important steps in the effort toward cheap transportation from the Northwest to the seaboard. Another means of attaining the same end is sought in the construction, or more strictly speaking, the completion of the James River and Kanawha Canal, by which a Southern outlet is to be furnished for the products of the Ohio and Mississippi valleys. The cost of both these works will be very considerable; that of the latter, as estimated by the Board of Engineers appointed for the survey, reaching no smaller sum than fifty millions of dollars. While, however, the first of these undertakings is being pushed, as rapidly as the appropriation made by the State of New York will permit, the latter is not likely to make any advancement in the immediate future, since the only prospect it has of relief is found in an appeal to the National Government for the capital to construct it. Within a short time, however, the American Geographical Society has announced the receipt of important information relative to Ship Canals, which are projected and likely to be shortly constructed, and which promise to be of great value to the internal commerce of the States east of the Alleghenies. The first of these projected canals, and that most likely to be of immediate advantage to the Iron trade, is the Maryland and Delaware Ship Canal, designed to connect the waters of Chesapeake and Delaware Bays across a comparatively narrow and level strip of country. The engineering features of this work present no obstacles worthy of note, so that is not to be considered in the light of a great undertaking, save in its commercial advantages. The distance to be cut through is but seventeen miles, beyond which nothing but the dredging of a sufficiently deep channel is required to furnish a water way without locks, suitable for the passage of the largest vessel. The topography of the country presents nearly a dead level, and no rock is met with necessary to be removed. By this canal a very considerable portion of the State of Delaware, the Eastern Shore of Maryland, and two counties of Virginia, in all an area of almost five thousand square miles, will be converted into an island. With the geographical features of the undertaking we are not here concerned. The important fact is that the saving of distance in navigation from Baltimore to New York by this work, will be at least two hundred and twenty-five miles, and to Philadelphia much more. Such are the advantages of the proposed Maryland and Delaware Ship Canal, as stated by the Geographical Society, and when we add that in the opinion of that body "no ship canal project seems to "be more feasible or practical, and if the vast "commercial wants and advantages be con-"sidered, none would be more valuable to "the commerce of the Atlantic seaboard," it is clear that nothing remains but to urge in the strongest terms the completion of the work. For some time it has been evident to merchants and manufacturers alike that the rapid growth of our coastwise trade with the South, to say nothing of our internal commerce from that region, demanded the increase of facilities for transportation, and primarily a method of avoiding the dangerous navigation of the Atlantic coast in winter. That portion of the coast lying between the mouth of the Chesapeake and Delaware bays has been the scene of innumerable marine disasters, only equalled by those of that portion lying adjacent to Cape Hatteras. Independent, however, of the general commercial advantages to be looked for from the construction of such a canal, it is a very simple matter to enumerate direct benefits to be looked for to the iron and coal trades. In a previous article we alluded to the existence of very excellent ores, resembling in constitution and character very closely the celebrated ores of the Lake Superior region of Michigan. These ores, lying in the Southern portion of Virginia, and attainable by water freights to Richmond, would naturally seek, *via* Chesapeake Bay and the proposed canal, a safe and easy outlet to the valleys of the Schuylkill, the Lehigh and the Hudson. By this means they could be transported without breaking bulk, and consequently at reduced cost, to the furnaces and steel works of the North. Further south, and within easy rail distance of Richmond, or by inland sound navigation from Elizabeth City to Norfolk, are the very valuable ores of North Carolina, which, from lack of transportation, have hitherto been kept out of the market. These ores, by the great saving in distance, would be thus brought within easy reach of consumers. Nor are we to look to this section for iron ores alone; North Carolina already furnishes a large portion of the mica used in the stove trade, an item of very considerable importance. Gold ores of greater or less value are also found in that State, which, with cheap freights and water transportation, can be brought to cheap fuel and the necessary skill and labor for their reduction. Southern Virginia contains, directly adjacent to the water ways spoken of, a variety of minerals ready for market, such as copper, manganese, plumbago, and barytes, all of which would seek an open market by this means, and which now are restricted in development and shipment. Nor are the gas, cannel and splint coals of West Virginia to be excluded from the list of products to be obtained more cheaply by means of this projected canal. These coals, for the two former of which there is a steady and profitable market in New York, will before long come by way of the James River Canal, should, as is expected, the short link of railroad between Buchanan and Clifton Forge, on the Chesapeake and Ohio Railroa be completed as is projected. To say nothing, therefore, of the Western products *via* the Baltimore and Ohio Railroad, the charcoal irons of Virginia and West Virginia, or the railroad ties and other timber of the same States, we have in the proposed ship canal a means of promptly developing the mineral trade of Virginia and North Carolina, and enabling a supply of cheap ores to the various metal industries of the North.

The second project referred to by the Geographical Society is that of Cape Cod, cutting off the peninsular of Barnstable from the mainland of Massachusetts. A saving of over one hundred miles of very dangerous navigation will here be made for vessels passing from Eastern to Northern or Southern ports.

The fact that public attention is so strongly and favorably attracted to these works, argues the approach of a period when the benefit of commerce and manufactures by means of cheap transportation is to be more closely studied, and a new field open for the investment of capital. Moreover, the certainty of the completion of these lesser, but no less important, works indicates the strong probability that such works as the James River and Kanawha Canal and the Champlain Ship Canal will be carried out in the near future. The importance of the latter undertakings are not to be doubted when we consider the magnitude of the internal commerce of the United States, and the vastness of our territory, lying as it does midway between Europe and Asia, and in the natural position to send our varied products to the new markets opened by extending commercial relations. With a coast line on the Atlantic extending through 20° of latitude, and on the Pacific through nearly 40° more, we have an area of 3,000,000 square miles open to trade and commerce within ourselves. With a money value of over $30,000,000,000 of real and personal property in 1870, at the same ratio of progress the individual wealth of the country in 1890 would equal $120,000,000,000. In 1870 the products of the soil alone were valued at over $2,500,000,000, while in 1872 seven of the Western States produced over 1,000,000,000 bushels of grain. These figures are only given to show the importance of facilities for transportation, and the demand for the products of the industries we represent, which such an agricultural product creates. By the report of the Senate committee it is shown that at least one-half of the cost of freighting the products of the soil from the West to the seaboard could be saved by proper provision for cheapening transportation, the readiest method of which was to be found in the water ways proposed. It is not to be supposed that the construction of canals is likely to effect in any way the market demand for iron, so far as lessening it is concerned. Given the possibility of moving the products of soil, forest and mine from the far West to the seaboard by the only natural and inherently economical method, water freights, and a demand will spring up for new roads to develop fresh agricultural and mineral regions, new furnaces to reduce the minerals on the spot, and mills and foundries to supply the population opening such regions which will give a healthy and vigorous prosperity to the iron industry, such as it has never yet possessed. All signs point to this as the legitimate end of the undertakings herein referred to. It is not more trunk lines of railway that are wanted, but trunk water ways, with lateral lines of railway for comparatively short routes, developing agricultural regions, and acting as feeders or tenders to the great routes which shall transport the products of the soil at the cheap and economical rates of freight only attainable in canal navigation.

The importance of the projected ship canals, and of the more extensive improvements here referred to, cannot, therefore, be overlooked by the iron trade. In their present crude condition they may not inaptly be compared to the railway system of the early days. The Chesapeake and Delaware Ship Canal occupies the position now that the Camden and Amboy Railroad then did, and the James River and Kanawha Canal of the future may be looked forward to as the Pacific Railway then was, a tremendous necessity, which all shrunk from undertaking, but the value of which, and the certainty of the ultimate construction of which, no one of intelligence dared deny.

New York and the Centennial.

We have received from Mr. A. T. Goshorn, Director General of the United States Centennial Commission, a copy of a letter addressed by him to Governor Tilden, of this State, which is of sufficient interest to be given to the public. The following is a copy:

INTERNATIONAL EXHIBITION, 1876.
UNITED STATES CENTENNIAL COMMISSION,
PHILADELPHIA, Jan. 30, 1875.

To His Excellency, Samuel J. Tilden, Governor of New York—SIR: In behalf of the United States Centennial Commission, I have the honor to direct your attention to several subjects connected with the International Exhibition of 1876, of great importance to your commonwealth, and for which provision should be made this year.

It has already become manifest that a large proportion of the articles to be exhibited will be provided for in a creditable manner by the manufacturers and producers of the several States. But there remain large classes of objects, whose collection is essential to a complete representation of the material and social condition of the community, yet which it is not to the interest or within the power of any individual to collect. Of this description are the unwrought natural resources of the land, such as its minerals, soils, woods, vegetation, etc. It is so largely upon their wealth in this direction that the growth of States depends, that this department of the Exhibition will be critically studied by those interested in the problems of immigration and of the investment of capital. On merely economical grounds every State would do well to provide liberally for the thorough and extensive representation of the actual and possible products of its soils. Another department that should be inaugurated and prepared under the auspices of the State governments, is that which may be termed the historial and statistical. Unless done by official authority, there will not be a complete presentation of such matters as the history of the early settlement of the State; its physical features; climate; geographical position; government, law and punishment of crime; system of State and municipal taxation; revenue and expenditure; benevolent institutions and charities; education—scientific, industrial, commercial; learned and religious societies; agricultural and manufacturing interests; the extent and effects of railroads and other means of transportation; the history and growth, in population and wealth, of the State. All these subjects, among others, ought to be so represented as to afford a summary view of the history, progress and present condition of every State. Unless this is accomplished, the exhibition will seriously fail in that part of its purpose which contemplates a representation of the nation's growth during the first century of its existence.

Official resources only are adequate to the satisfactory execution of the task thus proposed. It is hoped, therefore, that each of the States, either by legislative action or otherwise, will adopt such measures as may be deemed necessary to empower existing organizations or agencies to be created to prepare an exhibition of its native resources and moral and political advancement as herein indicated. A collective representation of this character will not only be interesting, as illustrating the prosperity of the country, but will also be of inestimable value for preservation in the archives of the nation, as a correct history of the birth and progress of the several communities that have contributed, during the century, to the growth and strength of the Union of States.

How far your State will participate in these suggestions is a question that I have the honor to most respectfully submit and recommend to your early consideration.

Your obedient servant,
A. T. GOSHORN,
Director General.

We hope that Governor Tilden will lose no time in submitting these suggestions to the legislature, with such recommendations as he may think advisable. We do not know that any steps have yet been taken to secure a creditable presentation of the resources and statistics of this State at the Centennial Exhibition. Our legislature has hitherto manifested a disposition to regard the exhibition with indifference, if not with disfavor. Now that the success of the undertaking is assured, it is probable that the exhibition will be regarded from a somewhat different standpoint. The time that remains in which to carry out the suggestions contained in Mr. Goshorn's letter is certainly brief, and if any action is to be taken in the matter it should be taken at once.

The Stove Trade.

The annual meeting of the National Association of Stove Manufacturers assembled at the Palmer House, Chicago, at noon yesterday, and is in session at the time of this writing. We hope to present a full account of the proceedings in our next issue. It would be profitless to speculate at this time on the probable action of the asssociation with regard to the basis for the ensuing half year, but the occasion suggests some reflections upon the condition and prospects of the stove trade, which may not be without interest to many of our readers.

For many reasons, the past season has not been an unprofitable one for stove manufacturers. The consumptive demands of the country have been comparatively small, and the market has been practically monopolized by novelties introduced under conditions rendering sharp competition necessary; prices have not been well maintained, and we have heard of many instances in which stoves have been sold so much below the probable cost of production that the makers would have done better to have kept their foundries closed and paid ground rent out of their capital. It is probable that these same conditions will prevail to some extent during the current year. We hear of great activity among the pattern makers, which gives promise of another avalanche of novelties upon the market as soon as the trade opens; and while the retail trade undoubtedly demands this stimulus, it is interesting to consider how the manufacturers will be effected by the change they have brought about. In the straining after novelty it is probable that many mistakes will be made. New patterns do not always captivate the public fancy, and the buyers of stoves for use are, generally speaking, not inclined to give a stove the benefit of any doubt which may exist in their own minds as to its utility, economy, convenience and beauty. The direction in which the effort after novelty has been carried furthest away from a safe basis is, in our judgment, in excessive and unnecessary "illumination." The idea of illuminating a stove is good, but it can be carried too far, and an intelligent housekeeper will not be long in finding out that too many mica lights are not desirable. These, however, are matters upon which we do not propose to offer the manufacturers any advice. Experience will show whether standard patterns with all improvements of real value, or novelties of doubtful popularity, are their safest dependence, and whether, between the desire to introduce new patterns on the one hand, and to run off old ones on the other, it is possible for them to maintain prices on a basis of legitimate profit. The course of this trade during the coming season promises to answer several important questions, which, during the past year, have suggested themselves to thoughtful manufacturers, and the meeting next week affords an excellent opportunity for an exchange of views in private conference, if not in public debate. We know the stove manufacturers of the country well enough to feel assured that they have no wish to cut each other's throats in a business way. Each one is willing his neighbor should prosper so long as he can make a reasonable profit; and a competition such as we have witnessed during the past year can only result from an abnormal condition of the trade. The National Association has done much to establish a healthier condition than existed previous to its organization, and it still has much to do before the purpose of its organization shall have been accomplished. For this reason every maker of stoves in the United States should be a member of it, and every member should attend its meetings.

New Publications.

A NEW TREATISE ON ELEMENTS OF MECHANICS, ESTABLISHING STRICT PRECISION IN THE MEANING OF DYNAMICAL TERMS. By John W. Nystrom, C. E. Published for the author by Porter & Coates, 822 Chestnut street, Philadelphia. 352 pages.

The author of this work is well-known to the engineering world through his pocket handbook, and through several other works on scientific subjects. Men of ability, great attainments and great force of character always leave the impress of their own individuality upon whatever work they may undertake, whether it be the construction of an engine or the writing of a book; and in glancing over the work before us, this is strikingly evident. We have personal ideas and opinions made manifest, and while certainly original, they do not always strike us as entirely appropriate to a work upon mechanics. Opinions, however, have in no way obtruded themselves upon the facts, and of these we have an abundance, put in convenient shape, and illustrated with suitable diagrams. The facts are just those which we wish to have always at command, and the author has put them into a coveniently available form. There are some sections that strike us as curiosities, and which afford much matter for thought, though perhaps not as practical in character as the greater part of the work, as for example, that on duodecimal arithmetic—a duodecimal numeration—which forms an appendix to the work.

The author's previous reputation for accuracy in facts, figures and rules is a sufficient guarantee for the accuracy of the present work. We are glad to see the work upon our table, and think it will be a useful addition to our library, as it will be doubtless to all those who have mechanical calculations to make. We notice several sections which seem to us very happy in the way in which they reach the gist of the matter. The nomenclature is somewhat original, and though we are not prepared to adopt it, yet the author has much to say in favor of it that requires attention, and certainly succeeds in making his meaning pretty clear by the use of it, which is more than can be said of many of our standard authorities upon the subject of mechanics.

The expression of rules by algebraic formulas is a practice which the author in his handbook has carried further than any author with whose works we are acquainted, and, though somewhat forbidding to one whose mathematical knowledge is small, it really puts a rule into the best possible form for comprehension and easy mastery. The same plan could be widely adopted in our pocket books with advantage, both in space and clearness. In this work, though elementary in its character, the rules are all in algebraic form, yet the greater part of them require no knowledge of the higher mathematics for their solution. The work on this account will be available to a large class of readers to whom the ordinary works are shut, because of the amount of mathematical knowledge needed to use them.

Various experiments have been made by a war committee, on explosives, with a view of ascertaining the practical effect of Prof. Abel's proposed plan for the bursting of common shells filled with water, by means of a detonator, consisting of dry compressed gun-cotton enveloping a small cap of fulminate of mercury. Some months ago the practicability of exploding 16 pound common sheels in this manner was satisfactorily established, and the result of such an arrangement was the bursting of a shell into 3000 fragments, whereas only about 30 pieces were produced by the explosion of an ordinary bursting charge of gunpowder. The effect of such an explosion among troops in the field could not be otherwise than disastrous in the extreme. Lately, however, experiments have been made with 9 inch common shells, which far exceed in effect that of any conducted with the field service common shell. On this occasion the bursting element employed was wet gun-cotton in lieu of water. The result was extraordinary, the shell bursting literally into thousands of pieces.

IRON TRADE STATISTICS.

Abstract of the Annual Report of the Secretary of the American Iron and Steel Association.

We have received an advanced copy of the annual report of Mr. James M. Swank, secretary of the American Iron and Steel Association, which will be presented at the annual meeting to be held in Philadelphia to-day. The report is of much interest and value, covering a wide range of subjects, and embodying a mass of carefully compiled statistics. We regret that our limited space prevents our giving more than the following brief extracts:

PRODUCTION OF PIG IRON IN THE UNITED STATES.

We present herewith full and accurate statistics of the production of pig iron in the United States in 1872 and 1873, derived from returns made directly to the office of the association by the makers, and by our regular correspondents. This exhibit is the most complete of the kind that has ever been given to the country, and its preparation alone has cost the association thousands of dollars. We briefly summarize the leading facts set forth in the detailed statements which follow, premising them by remarking that our tables do not include abandoned furnaces:

Whole No. of stacks December 31, 1871	571
Whole No. of stacks built in 1872	41
Whole No. of stacks December 31, 1872	612
Whole No. of stacks built in 1873	50
Whole No. of stacks December 31, 1873	662
Whole No. of stacks in blast Jan. 1, 1874	410
Whole No. of stacks out of blast Jan. 1, 1874	252
Whole No. of stacks completed in first 6 months of 1874	11
Whole No. of finished stacks July 1, 1874	673
Whole No. of stacks building July 1, 1874	53
Whole No. of stacks projected July 1, 1874	61
Total production in 1872, tons of 2000 lbs	2,854,558
Total production in 1873, tons of 2000 lbs	2,868,278
Estimated annual capacity of all finished stacks, net tons	4,500,000
No. of States having furnaces	25
No. of States making pig iron in 1872	21
No. of States making pig iron in 1873	21

PRODUCTION—1872 AND 1873.

	Fig Iron.	Charcoal.	Bituminous coal and coke.	Anthracite and coke.	Anthracite coal and coke.	Peat and charcoal.	Charcoal and bituminous coal.	Total.
410	No. of stacks in blast Jan. 1, 1874.	190	83	135	8	2	1	410
41	No. of stacks built in 1872.	6	20	13	1	1	....	41
50	No. of stacks built in 1873.	22	15	18	1	1	....	57
612	Whole No. of stacks in 1872.	283	154	191	8	4	1	612
662	Whole No. of stacks in 1873.	284	167	204	4	1	2	662
672	Whole No. of stacks July 1, 1874.	282	168	206	4	1	2	672
53	No. of stacks building in 1874.	10	22	20	....	....	1	53
61	No. of stacks projected in 1874.	19	26	16	....	....	....	61
2,854,558	Make in 1872—Tons of 2000 lbs.	500,368	946,913	1,309,812	37,246	224	....	2,854,558
2,868,278	Make in 1873—Tons of 2000 lbs.	574,720	963,900	1,312,754	44,004	500	2,400	2,868,278

There never having been any record kept of the quantity of pig iron on hand and unsold in this country from year to year, it is obviously impossible to ascertain accurately the consumption of pig iron in any given year, but a very close approximation can be made by adding the production in that year to the quantity imported. Observing this method, we have the following results for 1872 and 1873:

Home production of pig iron in 1872, net tons	2,854,558
Pig iron imported in 1872, net tons	295,967
Total consumption of pig iron in 1872, net tons	3,150,525
Home production of pig iron in 1873, net tons	2,868,278
Pig iron imported in 1873, net tons	154,780
Total consumption of pig iron in 1873, net tons	3,023,058

The value of the pig iron product for any year can be approximately ascertained by multiplying the average market value throughout the year of each kind of iron by the year's product, and adding the results thus obtained. In this manner we have carefully calculated the value of the pig iron manufactured in this country during the years 1872 and 1873, and find it to be as follows:

Value of 2,854,558 net tons of pig iron produced in 1872	$132,649,021
Value of 2,868,278 net tons of pig iron produced in 1873	118,343,308

Returns received at this office of the production of pig iron in the United States in 1874 indicate that it aggregated about 1,900,000 net tons, or two-thirds the product of each of the years 1872 and 1873. We have elsewhere estimated the quantity of pig iron unsold at the close of 1874 at 450,000 net tons.

PRODUCTION OF RAILS IN THE UNITED STATES.

Eighteen States made rails in 1873. Of the mills which produced the rails, 56 made heavy sections mainly, and of these 7 made Bessemer and iron rails, and 1 made Bessemer rails exclusively. Twenty-eight mills made only light iron rails. The total number of mills making rails of all kinds in 1873 was 84, of which Pennsylvania contained 28; Ohio, 17; New York, 7; Illinois, 7; Indiana, 4; Kentucky, 4; Tennessee, 3; Massachusetts, Maryland and Georgia, each 2; and Maine, Vermont, New Jersey, West Virginia, Michigan, Wisconsin, Missouri and California, each 1. For the first time in their history, Vermont and California entered the list in 1873 as producers of rails—Vermont re-rolling at her St. Albans Works 5554 tons of old rails and rolling 534 tons of new steel headed rails, and California, at her Pacific Rolling Mill, rolling 475 tons of new light and street rails. Pennsylvania, Ohio, Illinois and New York are first in the production of rails in 1873, as they were in 1872. The decline in the aggregate production of 1873 as compared with 1872 is due to the panic in the autumn of the latter year. If it had not occurred, the output of rails in 1873 would undoubtedly have reached the yield of 1872. Subjoined is a classification by States of the character of the rail product of 1873—in net tons:

States.	New Iron Rails over 40 lbs.	New Iron Rails under 40 lbs.	Old Rails Re-rolled over 40 lbs.	Steel Headed Rails over 40 lbs.	Street Rails.	Bessemer Steel Rails.	Total.
Maine	....	....	16,500	....	....	....	16,500
Vermont	....	....	5,554	534	....	....	6,088
Mass.	12,434	....	21,540	....	....	....	34,041
New York	20,531	....	3,662	15,263	242	19,376	59,784
New Jersey	....	....	7,215	6,474	60	....	13,749
Penn.	165,476	17,350	91,578	1,022	5,563	47,533	328,522
Maryland	8,036	....	34,320	....	....	....	42,356
Georgia	....	....	8,275	....	....	....	8,275
W. Virginia	4,000	....	....	....	....	....	4,000
Kentucky	2,812	589	7,527	....	458	....	11,386
Tennessee	1,590	2,160	10,178	....	50	....	13,973
Ohio	12,642	5,215	84,313	1,115	2,749	24,262	130,326
Indiana	1,000	....	25,579	....	....	....	26,579
Illinois	31,567	....	65,184	1,219	256	37,874	136,102
Michigan	....	....	4,433	....	....	....	4,433
Wisconsin	20,279	....	19,216	....	....	....	39,495
Missouri	11,000	....	3,020	....	....	....	14,020
California	....	425	....	....	50	....	475
Total	291,427	25,739	408,089	26,377	9,430	129,015	890,077

The consumption of rails of all kinds in 1872 and 1873 may be stated as follows, in net tons:

Rail Supply.	Steel. 1872.	Steel. 1873.	Iron. 1872.	Iron. 1873.	Total. 1872.	Total. 1873.
Prodct'n	94,070	129,015	905,990	761,062	1,000,000	890,077
Imprt'n	149,786	159,571	381,064	99,202	530,850	258,778
Total	243,856	288,586	1,286,994	860,264	1,530,850	1,148,850

In 1873 the consumption of steel rails increased 44,730 tons over the consumption of 1872, while the consumption of iron rails decreased 426,730 tons. The net decrease in consumption was 382,000 tons.

The importation of old rails fell off greatly in 1873, and in 1874 was merely nominal. Accurate statistics are wanting, but in 1873 the importation did not exceed 50,000 net tons, and in 1874 it was about 5000 tons.

Our total production of rails in 1874 we estimate at 450,000 net tons; our total importation, mostly steel rails, at 100,000 tons; our total consumption at 550,000 tons; and the number of miles of railroad built at 1900. The average price of best iron rails at Philadelphia during the year was $58·75.

SHIPBUILDING IN THE UNITED STATES.

From the report of the register of the treasury for the fiscal year ended June 30, 1874, we learn that the amount of tonnage built during the year exceeds that of the preceding year by 73,479 tons, and is greater than that of any year since 1855. The following table exhibits the class, number and tonnage of the vessels built during the last two fiscal years:

Description.	1873. Vessels.	1873. Tons.	1874. Vessels.	1874. Tons.
Sailing vessels	804	144,629	961	216,317
Steam vessels	402	88,011	404	101,930
Canal boats	835	78,388	473	48,403
Barges	230	48,318	309	66,075
Total	2,271	359,246	2,147	432,725

The following table exhibits the iron tonnage built in the United States in each fiscal year ending June 30th, since 1868, as shown by the report of the register of the treasury:

Kind of vessels.	1868.	1869.	1870.	1871.	1872.	1873.	1874.
Sailing	2,801	2,801	none.	1,039	670	....	....
Steam	4,564	8,545	1,602	....	....	....	....
Total	7,365	11,346	1,602	1,039	670	....	....
Tonnage.	4,564	8,545	1,602	....	....	....	....
No.	20	20	....	....	....	....	....
Tonnage.	15,479	13,412	2,067	....	....	....	....
No.	20	20	....	....	....	....	....
Tonnage.	12,706	12,706	none.	....	....	....	....
No.	26	26	....	....	....	....	....
Tonnage.	26,548	26,548	none.	....	....	....	....
No.	23	23	....	....	....	....	....
Tonnage.	33,097	33,097	none.	....	....	....	....

We have endeavored to compile a complete list of iron ship builders in the United States. The list given below is not believed to contain any important omission:

Atlantic Iron Works, Boston, Mass.
T. F. Rowland, Green Point, L. I., N. Y.
Union Iron Co., Buffalo, N. Y.
David Bell, Buffalo, N. Y.
Wood & Dialogue, Kaighn's Point, near Camden, N. J.
Wm. Cramp & Sons, Ship and Engine Building Co., Philadelphia.
Neafie & Levy, Philadelphia.
Philadelphia & Reading Railroad Co., Port Richmond, Philadelphia.
John Roach & Son, Chester, Pa.
Hartupee & Co., Pittsburgh, Pa.
Harlan & Hollingsworth Co., Wilmington, Del.
Pusey, Jones & Co., Wilmington, Del.
Kirby Brothers, Wyandotte, Mich.
Western Iron Boat Building Association, St. Louis, Mo.
Iowa Iron Works, Dubuque, Iowa.

IRON BRIDGES.

The building of iron bridges has received an immense impetus in the United States during the past few years, and the business takes high rank among the important adjuncts of the iron industry. Their durability, cheapness, indestructibility by fire, and the facility with which they may be placed either across wide rivers or narrow streams are qualities which are now everywhere recognized. Most of our railway bridges are now built of iron, and most of our great rivers are now spanned by them.

During the year 1874 there have been completed in this country, among many others, two notable iron bridges, each crossing an important river and leading out of a great city. The bridge over the Mississippi at St. Louis takes rank among the great bridges of the world as a marvel of engineering boldness, mechanical skill and herculean labor, while the Girard avenue bridge over the Schuylkill, at Philadelphia, challenges comparison by its great width, the fitness and completeness of all its details and the rapidity of its construction.

The manufacture of iron bridges for shipment to Canada and South America now forms a part of our export trade—the simplicity, excellence and cheapness of American iron bridges winning for them a market which foreign bridge builders have in vain sought to control.

PRODUCTION OF BESSEMER STEEL.

The production of pneumatic or Bessemer steel in the United States since 1867 has been as follows, in tons of 2000 pounds:

Years.	Tons.	Years.	Tons.
1867	3,000	1871	45,000
1868	8,500	1872	110,500
1869	12,000	1873	157,000
1870	40,000	1874...estimated,	175,000

Up to and including 1872 about 85 per cent. of the steel produced seems to have been made into rails, but in 1873 and 1874 a much larger proportion passed into other forms. Our returns indicate that in 1873 the rail percentage fell to 83, for in that year we made 129,015 net tons of rails, and produced 157,000 net tons of steel. In 1874 the product of steel is carefully estimated to have been 175,000 net tons. Our information is explicitly to the effect that the use of Bessemer steel in 1874 for purposes other than rails more than kept pace with the progress made in this direction in 1873, and hence we have elsewhere estimated the rail product for that year at 135,000 tons, which is more than three-fourths of the tonnage of steel produced.

The uses to which Bessemer steel is being applied in this country other than in the manufacture of rails are numerous and important. It is made into wagon tires, crowbars, railroad tools, wood screws, wire, wagon and car springs, and some kinds of carpenters' tools. Excellent augers are made from it in large quantities. It is also largely used in the manufacture of agricultural implements and the Hamilton car wheel. In Europe Bessemer steel is also coming largely into use as a substitute for other kinds of steel.

As has already been remarked, there are eight Bessemer steel and steel rail establishments in this country which are now in operation, and two others are being built. The last of the completed establishments to go into operation was that of the Bethlehem Iron Company, which made its first blow on Saturday, October 4, 1873, and rolled its first steel rail on Saturday, October 11, 1873. The two Bessemer works now being built are those of the Edgar Thomson Steel Company, Limited, near Pittsburgh, nearly completed, and those of the Lackawanna Iron and Coal Company, at Scranton, in process of erection. The total annual capacity of the eight completed establishments is fully 250,000 net tons of steel.

* * *

PRODUCTION OF STEEL OTHER THAN BESSEMER.

The statistics of the production of steel in this country in other than census years have always been difficult to obtain. A statement has been authorized by the steel manufacturers themselves, and this statement we append in the form in which we have received it:

Years.	Best Cast Steel. Net Tons.	Average Price. Cents.	Crucible (Cast and other than Best. Net Tons.	Average Price. Cents.	Total Crucible Steel. Tons.	German Steel. Net Tons.	Average Price. Cents.	Total Crucible and German Steel. Tons.
1863	1,108	19¼	5,111	13	6,219	2,825	9	9,044
1864	1,483	23½	6,019	17	7,502	2,497	9	10,000
1865	1,980	24	6,336	16	8,316	2,695	9	11,011
1866	2,889	24	7,390	14¼	10,279	2,670	9¼	12,949
1867	3,406	18¾	8,409	14¼	11,815	2,882	9¼	14,697
1868	3,674	18	12,768	13¾	16,342	3,749	9¼	20,091
1869	3,047	17¾	15,738	13¾	19,385	4,376	9¼	23,761
1870	4,832	16	20,170	13¾	24,492	3,251	9¼	28,243
1871	4,943	15¾	16,699	11¼	20,260	3,498	9¼	24,758
1872	7,796	15¾	25,317	11¼	33,196	3,290	9¼	36,486
1873	....	....	28,530	11¼	36,286	2,890	9¼	39,176

The phrases "cast steel" and "crucible steel" in the table embrace steel made by the Martin process, and the phrase "German steel" embraces blister steel. Puddled steel is not included in the table.

By a careful study of the statistics of steel production obtained by this Association for a number of years, we reach conclusions somewhat at variance with those given in the above table. These conclusions are embodied in the following summary of total production of all kinds of steel except Bessemer:

Years.	Net tons.	Years.	Net tons.
1865	15,362	1870	35,000
1866	18,973	1871	37,000
1867	19,000	1872	38,000
1868	31,500	1873	50,000
1869	23,000		

It is only necessary that we should add that the productive capacity of the steel works of the country is equal to all home requirements. We do not need to import a pound of steel for any purpose whatever.

* * *

PRODUCTION OF ROLLED IRON, BLOOMS AND NAILS IN 1873.

Below we present a table containing the statistics in detail of the production of all rolled iron, blooms and nails in 1873. The preparation of this table has been a work of much labor, but we have the satisfaction of being able to assure our readers that it is correct in every particular. It includes all varieties of rolled iron, and excludes all kinds of hammered iron whatever, except blooms made by forges and bloomaries. The rolled iron embraces bar, band, hoop, plate, sheet, angle, girder, beam, bout, guide, rod and bridge iron and rolled axles. All forged iron, such as anchors, anvils, hammered axles, cranks, ships' knees, etc., is carefully excluded, because it is impossible to learn the whole amount of iron hammered or forged in the vast number of machine shops, locomotive works, marine engine works, anchor works, and similar establishments of the country.

States.	Bar, Angle, Bolt, Rod and Hoop Iron.	Plate and Sheet Iron.	Kegs of Cut Nails and Spikes.	Blooms from Ore.	Blooms from Pig Iron.	Iron and Steel Rails of all sizes.
Maine	4,710	....	....	....	....	16,500
New Hampshire	300	....	....	....	....	....
Vermont	....	....	....	....	....	6,088
Massachusetts	44,490	8,822	626,465	700	....	84,034
Rhode Island	8,000	....	73,249	....	....	....
Connecticut	11,409	....	....	....	....	....
New York	85,908	4,888	84,433	32,053	....	59,264
New Jersey	37,974	5,158	456,587	....	....	13,749
Pennsylvania	333,556	113,726	1,196,609	....	38,362	328,522
Delaware	8,214	3,343	....	....	....	....
Maryland	1,940	13,709	....	....	....	42,356
Virginia	7,462	....	106,912	....	2,500	....
North Carolina	....	....	....	110	....	8,275
Georgia	1,840	....	10,183	....	....	4,000
Alabama	500	....	....	....	....	11,386
West Virginia	2,863	1,000	878,653	....	1,105	13,973
Kentucky	25,675	894	....	....	....	130,326
Tennessee	2,585	....	....	....	....	26,579
Ohio	102,895	14,811	460,618	....	....	4,433
Indiana	4,500	....	98,530	....	....	39,495
Illinois	5,240	....	38,500	....	....	136,102
Michigan	2,284	1,825	....	....	....	14,020
Wisconsin	....	....	....	....	2,444	475
Missouri	7,608	993	....	....	....	....
California	6,945	....	....	....	....	....
Total	705,964	169,169	4,024,704	32,863	29,701	890,077

The 4,024,704 kegs of cut nails and spikes were made from 201,235 net tons of nail plate, which must be added to the 169,169 net tons of plate and sheet iron in the second column of the table to obtain the total quantity of iron of this kind rolled in 1873. This is 370,404 net tons. By adding this total to that of the first column we obtain an aggregate of 1,076,368 net tons of rolled iron, exclusive of rails, produced in this country in 1873. The product of rails of all kinds in the same year was 890,077 net tons, making the grand total of rolled iron produced in the United States in 1873 to be 1,966,445 net tons. This is about the quantity of rolled iron produced in 1872—the yield of rails being smaller and that of other rolled iron larger than in that year.

In the following table is given a summary in net tons of the total production of rolled iron in the United States from 1864 to 1873, both years included. While the progress of these 10 years has been very great, the capacity of our rolling mills is at least 20 per cent. greater than the best yield they ever made.

Years.	Rails.	Oth'r rolled Iron.	Total.
1864	335,369	536,958	872,327
1865	356,292	500,048	856,340
1866	430,778	595,311	1,026,089
1867	462,108	579,838	1,041,946
1868	506,714	598,286	1,105,000
1869	593,586	642,420	1,236,006
1870	620,000	705,000	1,325,000
1871	775,733	710,000	1,485,733
1872	1,000,000	941,992	1,941,992
1873	890,077	1,076,368	1,966,445

We estimate the total production of rolled iron in 1874 at 60 per cent. of the output in 1873, or 1,179,867 net tons.

The product in blooms of the forges and bloomaries of the country in 1873 was 62,564 net tons. This branch of the iron industry in United States has been almost stationary for several years, as will be seen by the following table of the production of the forges and bloomaries since 1865:

Years.	Net Tons.	Years.	Net Tons.
1865	63,977	1870	62,259
1866	73,355	1871	63,006
1867	73,073	1872	58,000
1868	75,200	1873	62,564
1869	69,500		

SPIEGELEISEN IN THE UNITED STATES.

The total annual consumption of spiegeleisen by the eight Bessemer establishments in this country, when fully employed, will not exceed 25,000 gross tons. It has never amounted to quite this quantity in any year. Most of the spiegeleisen used is imported. It is classed as ordinary pig iron, and pays duty as such. Only one company in this country makes spiegeleisen—the New Jersey Zinc Company, of Newark, New Jersey, which has three furnaces, each 20 by 7 feet, with a combined annual capacity of 5000 gross tons. In 1872 they produced 4072 gross tons; in 1873, 3930; in 1874, 4070 tons. We have included these products in the statistics of anthracite pig iron elsewhere given. The spiegeleisen made by this company is equal to the best that is imported, and is, therefore, readily sold. We subjoin two analyses of it, which we have received directly from Mr. Edward Baker, the president of the company:

Iron	83·250	83·23
Manganese	11·586	11·67
Phosphorus	0·196	0·14
Silicon	0·367	0·29
Carbon	4·632	4·02
	100·031	100·10

Pig iron that is rich in manganese and almost free from phosphorus, silicon and sulphur, is made at several furnaces in the country, but not of a quality that will, under present conditions, justify its use as spiegeleisen. The country, however, possesses an abundance of the ores necessary to produce all the spiegeleisen it may require, and we look for some decided steps to be taken at an early day to render our Bessemer establishments entirely free from all dependence upon foreigners for a material so necessary to their prosperity.

SUMMARY OF IRON AND STEEL PRODUCTION.

Below is a summary in net tons of the ascertained production of iron and steel in the United States in 1872 and 1873:

PRODUCTS—NET TONS.

	1872.	1873.
Iron and steel rails	1,000,000	890,077
Bessemer steel rails	94,070	129,015
Iron rails	905,930	761,062
Blooms from ore and pig iron	941,992	1,076,368
Bessemer steel (merchantable)	58,000	62,564
All other kinds of steel	110,500	157,000
Pig iron	38,000	50,000
	2,854,558	2,868,278

It is greatly to be desired that accurate statistics of the consumption of iron in various industries could be procured, but no agency exists or can be created by which this information could be obtained in any other than an approximately correct form. To obtain even this information would be a work of great labor and expense. The general government could best perform it through a bureau of manufactures or when the next census is taken.

The Copper Movement in Europe and America.

The last mail from Europe brought us full statistics of the copper movement there for the past four years, which may be summed up as follows:

CHILI'S EXPORT TO EUROPE.

1871. Tons.	1872. Tons.	1873. Tons.	1874. Tons.
41,311	46,495	42,229	48,026

In these export figures the month of December, 1874, was estimated at 4200 tons.

THE ACTUAL CHARTERS HAD BEEN:

1871. Tons.	1872. Tons.	1873. Tons.	1874. Tons.
41,187	43,074	43,227	49,498

It will be seen that instead of the supposed decrease there has been an increase in the export of Chili of 18¾ per cent.

IMPORTS INTO ENGLAND AND FRANCE.

	1871. Tons.	1872. Tons.	1873. Tons.	1874. Tons.
From Chili	36,727	44,312	40,441	45,85
" Australia, &c.	9,159	17,114	12,314	12,091
	45,886	61,426	52,755	57,576

Average import, 54,410; excess last year and above the average, 3166, and over the preceding one, 4821.

DELIVERIES IN ENGLAND AND FRANCE.

1871. Tons.	1872. Tons.	1873. Tons.	1874. Tons.
63,384	47,984	56,662	65,662

Average deliveries, 58,423; excess last year over and above the average, 7239, and over those of the preceding one, 9000.

SHIPMENTS FROM ENGLAND.

1871. Tons.	1872. Tons.	1873. Tons.	1874. Tons.
60,415	50,336	59,955	64,959

Average shipments, 58,916; excess last year over and above the average, 6043, and over those of the preceding one, 5004.

The deliveries, it will be seen, have been unprecedentedly heavy, and so have been the shipments, stimulating the upward tendency of prices from early in May to the end of November, and being materially assisted therein by declining stocks. The latter, indeed, had run lower early in December, 1874, than they had done since May, 1872, as exhibited by the following table of

STOCKS IN ENGLAND AND FRANCE ON THE FIRST OF EACH MONTH.

	1871. Tons.	1872. Tons.	1873. Tons.	1874. Tons.
January	36,807	19,309	32,751	28,844
February	35,215	19,733	32,692	29,727
March	34,272	20,712	32,739	29,045
April	34,473	19,589	30,638	29,510
May	35,610	21,406	29,942	30,617
June	34,709	20,939	31,046	27,517
July	32,547	22,334	30,875	26,901
August	30,357	26,028	31,812	27,986
September	30,975	27,256	29,958	27,075
October	35,900	29,032	29,084	24,235
November	36,085	28,239	30,160	22,582
December	30,692	31,545	29,699	20,685

Adding thereto the quantities chartered in and afloat from Chili, we arrive at the

VISIBLE SUPPLY IN EUROPE.

	1871. Tons.	1872. Tons.	1873. Tons.	1874. Tons.
January	47,495	30,712	42,325	36,115
February	45,446	29,479	42,242	36,651
March	42,991	29,864	40,856	35,295
April	45,091	30,682	37,812	36,918
May	44,017	33,817	38,491	36,997
June	43,971	34,332	38,820	34,243
July	41,717	34,269	40,097	32,497
August	38,160	37,830	39,484	32,915
September	39,559	39,196	37,296	31,382
October	36,189	40,255	35,851	31,359
November	38,961	39,187	36,152	30,141
December	30,450	40,957	35,084	27,741

The visible supply, it will be observed, had at no time during the four years under review been brought down to so moderate a figure. The price of Chili bars had from £73 early in May recovered to £89 at the end of November, since when there has been a gradual decline to £82 to £83. This has been brought about by a variety of causes. Speculation had helped materially in producing the great improvement of £16 per ton, and after the main operators had sold out at a profit, less powerful holders were unable to uphold prices through the dull winter months from the moment adverse influences arose, and all sorts of rumors were set on foot in order to produce a fall. The statistical position had in reality remained good enough, notwithstanding heavy Callean charters and shipments, but the demand for actual requirements had greatly abated; there were accounts from Japan, apparently grossly exaggerated, of shipments from there to Europe, and even from here predictions had been set afloat that we should be able to spare Europe something like 7000 tons in all the present year.

Out of 17,000 tons which we produced in 1874, we have consumed ourselves 13,000, leaving 4000 for export. But it is a well-known fact that the bulk of this consumption, say 75 per cent. of it, fell into the last five months of the year. While admitting that this sudden and unexpectedly large consumption was greatly due to the extra demand from cartridge manufacturers, it is conceded by those who have studied the subject, that stocks of brass goods have been considerably reduced, that the supply of available copper in the hands of manufacturers is exceedingly moderate, and that the majority of them will be compelled to enter the market sooner and more extensively than may be apparent at the present moment, under circumstances by no means as favorable as those prevailing during the first four or five weeks of the year.

In England, where the labor question more directly affects copper, a favorable reaction may not be at hand so soon; but we nevertheless feel persuaded that the apprehensions of an extra supply hence being dispelled by the future course of our own market, they will be all the easier led back to a more correct appreciation of the real position of copper, which, as their own statistics abundantly show, is the reverse of gloomy or desperate.

Seven Metals.

In the discovery of metals men first asserted their mastery over nature. Yet the discovery is still progressing. Before the fifteenth century only seven were positively known. They were each held sacred among the ancients to some ruling deity. Gold—indestructible, malleable, the richest in coloring, the most precious of decorations—was consecrated to Jupiter, or the sun, and had already assumed the supremacy which it has never lost.

It was coined into the heavy darins of Persia and the aureus of imperial Rome. It was used to gild temples and statues, was wrought into rich jewelry and woven in delicate threads that enlivened the flowered stuffs of Babylon. Gold mines and gold-bearing streams were found in Arabia, Syria, Greece, Italy and Spain, and the pursuit of the precious metal was carried on with various success by throngs of miners. The richest mines, at least in later ages, were those of Spain, and the enormous productiveness of the Spanish soil was slowly exhausted by the successive labors of the Carthagenians and the Romans. So successful was their industry that but little gold or silver can now be found in a territory where the precious metal once lay scattered in a boundless profusion on the surface of the earth.

Silver ranked next to gold, and was named from the soft light of the moon. The richest silver mines were those of Spain. It was wrought into cups, vases and lamps; adorned the helmets and shields of warriors, and formed the costly mirrors with which the Roman ladies shocked the austerity of Lactantius or Jerome. The beautiful silver coins of the Greek and Roman cities fill modern collections. Five other metals—iron, copper, mercury, lead and tin—were employed by the ancients for various purposes; they made steel by a rude process, and brass without discovering zinc.

For many ages no addition was made to the sacred seven. Three thousand years passed away before it was suspected that the number could be increased—a memorable example of the slowness of human apprehension. At length, in 1460, antimony was added to the metallic family; and not far off from the period of the discovery of the New World, the chemists were about to enter upon fresh fields of science scarcely less boundless or inviting.

A second metal, bismuth, came in almost with the Reformation. Zinc, perhaps the most important of the new family, may have preceded the others. It was certainly described long before. It is, indeed, quite curious to note how the bright metal had been constantly forcing itself upon the attention of careful observers, and had been wholly overlooked; had been used by the ancients, in the form of an earth to color copper into brass, and give it a shining surface like gold; was seen dropping from the furnaces of the Middle Ages, or melted in rich flakes from their walls.

Two magicians, or philosophers, at last detected the error of the ages; and Albertus Magnus and Paracelsus probably both discovered that zinc was as indestructible and free from foreign substances as gold. It seemed a pure element. Paracelsus, who was fond of penetrating to the source of things, admits that he could not tell how the bright metal grew; nor in the hight of their magic renown was it ever foreseen that the rare substance the sorcerers had discovered would one day shed knowledge, in tongues of fire, from London to Japan.

Two centuries followed, during which no metallic substance was discovered. Paracelsus found no successor; Albertus, almost the first man of science in Europe, was remembered to be a sorcerer. It was not until 1733 that the vast field of metallic discovery began to open upon man; two valuable and well known metals—platinum and nickel—among several others, first appeared about the middle of the eighteenth century. The number of the metals now rapidly enlarged, galvanism lent its aid to dissolve the hardest earths; and at length, in the opening of the nineteenth century, a cluster of brilliant discoveries aroused the curiosity of science.

Each eminent philosophor seemed to produce new metals. Berzelius discovered three; Davy, Paracelsus of his age, is the scientific parent of five—potassium, sodium, barium, strontium, calcium. The number advanced, until already more than fifty metals, of various importance, have been given to the arts. The new experiments in light have added cœsium and rubidium, and no limit can now be fixed for the metallic family, which, for so many ages, embraced only seven members, the emblems of the ruling gods.

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Wanted.

A situation as bookkeeper or cashier of an iron works, a hardware business, or in the coal trade, which the advertiser understands in all its branches. Highest references of character, capacity, &c.

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By an experienced man who has a large acquaintance with the wholesale and retail hardware and house furnishing merchants thoughout the West, a position as traveling salesman. Can furnish good city references. Address, P. A. C.,
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Hardware, Cutlery, French Tinned Ware, Guns, &c., &c.

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DEEP RIVER, Conn., Sept. 7, 1874.

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New York, January 18, 1875.

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SUPT. BURRITT,
330 Delancy St., New York.

To Stove Manufacturers and Foundrymen.

The Carbon Stove Company,
Of Burlington, N. J.,

Will sell their Foundry, with all its appurtenances, business and good will, upon very liberal and accommodating terms, offering to any party wishing to engage in the Stove or general Foundry Business a rare opportunity.

The Foundry Buildings, which are of a capacity to employ forty or more molders, are very conveniently located upon navigable tide water on one side, and the Pennsylvania Railroad, with its freight station in front, being on the direct line between New York and Philadelphia.

The Buildings, Machinery and Appliances are all in prime order, and the assortment of Patterns, &c., for Stove, Range or Heater work, unsurpassed.

Address, for terms or other particulars,
CARBON STOVE CO., Burlington, N. J.

FOR SALE.—The Factory occupied by the undersigned as a saw manufactory. It consists of a two story Brick Building, 30 by 60 feet, brick boiler and engine room 16 by 30 feet, 15 horse engine and boiler, with every convenience and in excellent order, with a frontage of 90 feet on Broad St.; also, on same land, with a frontage of 12 feet on Canal St., one two story and basement frame Dwelling House, in good order. There is a very good supply of excellent water, and it is very conveniently situated, only five minutes walk from the ferry landing at Stapleton. The whole will be sold reasonably and on easy terms. Apply to or address,
J. & A. F. SIDDALL, Stapleton, Staten Island, N. Y.

FOR SALE,

£1. German consular instructions in English, published by subscriber,

Translator for **MANUFACTURERS** from and into the **English, German, French** AND **Spanish.**

C. KIRCHHOFF
Metal Reporter of "The Iron Age,"
Box 2806, N. Y.

Special Notices.

For Sale.

IMPORTANT

To Bridge Builders & Contractors for Iron Work.

FOR SALE,

About 20,000 pounds of Patent Rolled Hexagon Nuts, reamed and chamfered for Bolts from 1¼ to 1¾ in. diameter, at a very low price.

JOHN McANERNY & CO.,
Dealers in
Railway & Steamship Supplies,
63 BROADWAY, N. Y.

PUBLIC SALE

Of a Valuable Iron Property

In Augusta County, Virginia.

The undersigned Commissioners, in pursuance of a decree of the Circuit Court of Augusta county, Virginia, in three Chancery causes (brought on to be heard together), in which Denmead & Son, Raymond & Campbell, and Eyler, Cooper & Co., are respectively Plaintiffs, and the Buffalo Gap Iron and Steel Company and others, Defendants, will sell at public auction, on

Wednesday, the 3d day of March, 1875,

at BUFFALO GAP, in the aforsaid county, all the

REAL ESTATE

of above named company. Said Real Estate embraces a tract of

MINERAL LAND,

containing about **1450 acres,** with

TWO VALUABLE IRON FURNACES

thereon; and a FARM of about **600 acres.** These two parcels of Land will be sold separately.

The Mineral tract lies in and around a depression in the North Mountain range, through which the Chesapeake & Ohio Railroad passes, known as Buffalo Gap. The veins of ore on this land have been but partially developed, owing to the fact that the Furnace heretofore operated on it was plentifully supplied with good ore from the neighborhood, delivered at the furnace, at an average price of $2 50 per ton.

Competent mineralogists and miners, who have examined the openings made on the property, express the opinion that ore exists on it in very large quantities.

There are quarries of good limestone on the land; and much of it is well timbered.

THE FURNACES

are immediately on the Chesapeake & Ohio Railroad, in the great Iron Region of Virginia, and about 150 miles from the Coal Fields of West Virginia, which are traversed by said road. They are ten miles west of Staunton and 147 miles west of Richmond.

FURNACE No. 1 has been in blast for several years, and has operated well. No. 2 is entirely new, indeed not quite complete; but the materials for its completion are on hand and the work can be done in a few days.

Each of them has an Iron Jacket Stack, built on iron columns. No. 1 is 35 feet high and 9 feet across the bosh, to which is connected a Player Hot Oven. No. 2 is 40 feet high, 10 feet across the bosh, with a Raymond & Campbell Hot Oven.

There are three Cylinder Boilers, 40 feet long, three feet in diameter, and in excellent condition; a 60 horse power engine with two blowing cylinders, capable of making 7 lbs. of blast to the square inch, and in complete order; two water tanks with a capacity of 60,000 gallons, supplied from a never failing stream; a steam fire donkey engine, connected with several hundred feet of gum hose; an ample bridge or stock house, casting houses and two calcining kilns—in fine, the Furnaces are, in all respects, first-class.

Around them is a village of 25 or 30 houses, embracing a handsome and spacious manager's residence, offices, storehouses, shops, laborers' houses and a neat chapel.

THE FARM

hereinbefore mentioned adjoins the tract of Mineral land. It is well watered and timbered; and is very productive. Improvements consist of a large BRICK BUILDING, Grist Mill, Saw Mill, Tenants' Houses, a large Barn, and all the other out houses usually found on a good farm in the Valley of Virginia.

Parties proposing to buy are invited to examine the aforesaid property before the day of sale. Mr. John Tierney, who is in charge of the furnaces at Buffalo Gap, will take pleasure in showing the property; and the undersigned Commissioners, who may be addressed at Staunton, Va., will take pleasure in answering inquiries concerning the same.

At the same time and place will be sold whatever **PERSONAL PROPERTY** the Buffalo Gap Iron and Steel Company may have on their premises at Buffalo Gap.

Terms on which aforesaid property will be sold are as follows: Ten per cent of the purchase money will be required in cash, 15 per cent. in four months, and the balance in three equal annual installments from the day of sale, with interest from the last named day. For all deferred installments of purchase money, the purchaser will be required to give bonds with approved personal security, and the title will be withheld as ultimate security.

GEORGE M. COCHRAN, Jr.,
THOS. C. ELDER
Commissioners of Sale.

LOWE & THOMASSON,

Chattanooga, Tenn., Dealers in

MINERAL LANDS.

Surveys Made and Titles Investigated. Parties desiring information or wishing to purchase ore or coal lands within the States of Tennessee, Alabama or Georgia, are respectfully requested to communicate.

We have For Sale Very Cheap

Two of the

Finest Charcoal Properties

in America. Brown Hematite Ore, 56 per cent. Metallic Iron, and less than 1-20th of 1 per cent. of Phosphorus. Car Wheel Iron can be made for $16 per ton.

Also, 6400 Acres Bituminous Coal Lands, for which part payment will be taken in Northern Pacific R. R. Bonds.

FOR SALE.

An ⅝ inch mill train for making Merchant, Band and Hoop Iron. Will be sold cheap.

Apply to **W. W. JONES,**
Near the Lehigh Valley Railroad Depot,
Allentown, Pa.

For Sale or Rent.

Hibernia Iron Works.—This property is situated in Chester county, on the Wilmington and Reading Railroad, four miles north of Coatesville: It consists of a rolling mill for making flue or boiler plates; a forge with four fires and run-out fire; grist and saw mill; also farm of about 200 acres, with fine mansion house. Will be sold or rented, separate or together, on easy terms to a good tenant. Apply to **James H. Bull,** West Chester, Pa.

FOR SALE.

At Lowest Manufacturers' Rates.

GUNS & SHEET ZINC,

Best German and Belgian Brands,
By *LOUIS WINDMULLER & ROELKER,*
90 Reade Street, N. Y.

For Sale, &c.

FOR SALE,

Hardware and Stove Store,

A good complete stock, doing a cash business, situated in a thriving town in Central Ohio, at the crossing of two important railroads. Will sell part cash, balance on good time. Address, **A. & F.,**
Box 194, Bellefontaine, O.

MACHINERY FOR SALE.

The following machinery, &c., being that recently owned by the

American Rolled Nut & Tube Co.,

at very low prices. Consisting of several sets of *ROLLS, HOUSINGS, BED PLATES, &c.,* for Rolling Nuts, including machines for finishing, 1 train of

8 in. Guide Rolls.

Large quantity of

Rolled Nuts for Bolts,

from 1¼ to 2 in diameter, reamed and burred ready for use. Lot of

STANDING PLATES.

These nuts have been extensively used, and are regarded as equal to any made, and will be sold much under the market value. Will also sell a

Fourth Interest in the Patent for making these Nuts.

It is confidently believed that nuts can be made on this plan cheaper and better than on any other yet adopted, and may be rolled of any length or size that may be required. All of the above machinery is nearly new and in complete order. For further information, apply in person or by mail to

N. C. NEWTON,
Metropolitan Iron Works, Richmond, Va.

For Sale.

A Zinc Mill, consisting of Rolls, Furnaces, Shears and Tools, all in complete order, ready to run at once. Situated near New York on leased ground. Lease covers buildings, engine and boilers, and is a valuable one, having privilege of extension. For full particulars, address,

Box 2166 N. Y. P. O.

For Sale!

Hardware Business

In a growing manufacturing town, one of the best locations in Vermont. Business well established and profitable. Stock about $13,000, in good order. This affords an excellent opportunity for a party with small capital to secure a paying business.

Address, **W. R. BIXBY & SON,**
Vergennes, Vt.

To Rent.

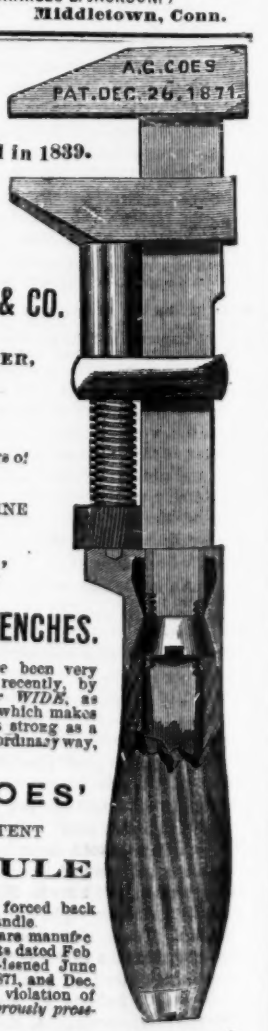
First and third floors—together or separate. Brick building 125x50, well lighted and the best business location in the city. Light power will be supplied if desired, or parties can furnish their own if preferred. Address, with particulars,

H. D. STANLEY, Secretary,
Bridgeport, Conn.

For Sale or Rent on Easy Terms.

A four story brick factory 46x60 ft. with unfailing water power of about 25 horse-power, auxiliary steam engine of 20 horse-power. Adjoining are office, barn and other outbuildings. Situated near depots of three railways, and lines of boats to New York and Philadelphia. Every facility for manufacturing and getting goods to market at cheapest rates. Apply in person or by letter to either

JOSEPH W. ALSOP,
ROBERT N. JACKSON,
CHARLES E. JACKSON,
} Executors.
Middletown, Conn.



Established in 1839.

A. G. COES & CO.

WORCESTER,

Mass.,

Manufacturers of

THE GENUINE

COES'

SCREW WRENCHES.

Our goods have been very much improved recently, by making the *Bar WIDE*, as shown in the cut, which makes a 12 in. Wrench as strong as a 15 in. made in the ordinary way, and by using

A. G. COES'

NEW PATENT

FERRULE

Which cannot be forced back into the handle.

☞ Our goods are manufactured under Patents dated February 7, 1860, (re-issued June 20, 1871), May 2, 1871, and Dec. 26, 1871, and any violation of either will be *vigorously prosecuted.*

We call particular attention to our new Patent Ferrule, with its Supporting Nut (shown in section in the above cut), which makes the strongest Ferrule fastening known.

A. G. COES & CO.

Trade Report.

Office of THE IRON AGE,
WEDNESDAY EVENING, Feb. 10, 1875.

The past week has witnessed a considerable activity in all departments of the financial market. The money market has continued very easy throughout the week, with call loans at 2 @ 3 per cent., and prime mercantile paper at 4 @ 6 per cent.

The bank statement shows a loss in total reserve of $2,604,400, caused by a loss of $2,018,200 gold, and $586,000 legal tender notes. The surplus reserve of the banks has been reduced from $15,994,400 to $12,907,000. That there has been more demand for money is shown by the increase of $4,744,900 in loans; this demand has come from legitimate business rather than Stock Exchange speculators. The bank averages for the past two weeks compare as follows:

	Jan. 30.	Feb. 6.	Differences.
Loans	$286,452,800	$291,197,700	Inc. $4,744,900
Specie	17,180,600	15,162,400	Dec. 2,018,200
Leg. Ten.	57,861,600	57,275,4 0	Dec. 586,200
Deposits	236,191,200	238,123,200	Inc. 1,932,000
Circ'lation.	23,801,800	23,642,200	Dec. 159,600

The gold market was strong early in the week, but subsequently weakened somewhat. The advance to 115 was chiefly caused by the news that the Bank of England had lost £1,600,000 bullion during the week ending Thursday, from which it was inferred that the Bank rate would be advanced, and gold would be withdrawn from New York. Later advices showed that the gold drawn from the Bank of England had been sent to Paris on account of the subscriptions to the municipal loan of the city of Paris. This loan is for 250,000,000 francs, and the subscriptions to it amounted to forty-two times the sum offered—that is, they amount to 10,500,000,000 francs. There can be little doubt that the "margins" deposited in connection with these bids will, in a large measure, account for the withdrawals of bullion from the Bank of England last week; and, upon this supposition, it is not surprising that the Bank managers should not have regarded the loss of gold a sufficient reason for changing the rate of discount on Thursday last.

The following table shows the daily range of the premium since our last report:

	Highest.	Lowest.
Thursday	114⅛	114¼
Friday	114⅛	113⅞
Saturday	114⅛	114
Monday	114⅛	114
Tuesday	114⅛	114⅛
Wednesday	114⅛	114⅛

Government bonds have been alternately strong and weak. Railroad bonds and investment shares are steady.

The stock market has been feverish and irregular, but in the main heavy.

The following tables show the foreign trade movements for the week:

IMPORTS.

	1873.	1874.	1875.
Total for week	$5,929,812	$7,929,642	$5,926,495
Prev. reported	36,398,267	25,645,597	25,838,137
Since Jan. 1	$42,328,109	$33,575,239	$31,764,632

Included in the imports of general merchandise for the week are:

	Quant.	Value.
Brass goods	5	$572
Bronzes	12	3,840
Chains and anchors	116	5,113
Copper		176
Cutlery	74	25,877
Guns	52	6,825
Hardware	146	17,098
Iron, pig, tons	100	3,340
Iron, other, tons	217	5,340
Lead, pigs	3,757	17,343
Metal goods	129	20,638
Nails	5	223
Needles	10	9,458
Old metal		1,098
Platina	1	696
Per. caps	23	4,778
Saddlery	1	112
Steel	2,445	35,174
Silverware	4	392
Tin, boxes	35,551	275,763
Tin, 1361 slabs	79,005	16,211
Wire	17	4,325
Zinc	427,006	28,340

EXPORTS OF SPECIE.

Total for the week	$1,867,994
Previously reported	9,204,323
Total since January 1, 1875	$11,072,317
Same time in 1874	3,195,100
Same time in 1873	8,203,182

Government bonds closed as follows:

	Bid.	Asked.
U. S. Currency 6's	119¾	119¾
U. S. 6s 1881, reg.	119¾	119¾
U. S. 6s. 1881, cou.	120¼	120½
U. S. 1862, 5-20 reg.	116¼	116¾
U. S. 5-20 1862, cou.	116¼	116⅝
U. S. 5-20 1864. reg.	117½	118
U. S. 5-20 1864, cou.	117¾	118
U. S. 5-20 1865, reg.	119¼	119¾
U. S. 5-20 1865, cou.	119¾	120
U. S. 5-20 1865, reg. new	118¼	119
U. S. 5-20 1865, cou	118⅞	119
U. S. 5-20 1867, reg.	119⅜	119⅝
U. S. 5-20 1867, cou.	119¾	120
U. S. 5-20 1868, reg.	120⅜	120
U. S. 5-20 1868, cou.	119⅞	120⅛
U. S. 10-40 reg.	114¾	114⅞
U. S. 10-40 cou.	117⅛	117⅝
U. S. 5s, 1881, reg.	115¾	115⅞
U. S. 5s, 1881, cou.	115¾	115⅞

The following were the highest and lowest prices of stocks to-day:

	Highest.	Lowest.
N. Y. Cen. & Hudson Consolidated	101¾	101
Lake Shore	73⅜	73
Rock Island	103¾	103⅛
Del., Lack. and Western	109⅜	109⅛
Michigan Central	76	76
Wabash	13¾	12¾
Western Union Telegraph	73	73⅛
Atlantic and Pacific Telegraph	24¾	24⅛
Northwestern	44¾	44½
" Pref.	58	56⅝
Milwaukee & St. Paul	36¾	35⅝
" " Pref.	57	57
Panama	113¾	113¾
Pacific Mail	33⅝	30⅞
Erie	27¾	27⅛
Ohio & Mississippi	29¾	29⅛
Union Pacific	40⅝	40⅛
C., C. & Ind. Central	6¼	4¾
Hannibal & St. Joseph	20¾	19⅛
Quicksilver Preferred	39	39
United States Express	57¼	56¾

GENERAL HARDWARE.

Trade generally is improving, and a good deal of activity is seen in some establishments, and the general report is that letter orders are coming in well. Changes in prices are not many nor important, and most goods are firm. Strap and T Hinges and Wrought Butts are a conspicuous exception, the market being much demoralized.

The Stanley Rule and Level Company will issue in a few days an additional page (30½) to their catalogue for 1874, with price list of Winterbottom's Patent Combined Try and Mitre Square, a tool which was fully described and illustrated by us in our last week's paper. They also add two Block Planes to their list of Bailey's Patent Adjustable Planes. The aggregate sales of Bailey's Planes, both iron and wood, exceed now 85,000 Planes, and the demand becomes more extensive as their merits are more fully recognized by mechanics.

Hermann Boker & Co. have been appointed sole agents for Addis' Carving Tools, for which they will take orders for importation, but carry no stocks, as there are over 600 varieties.

English goods are without special feature, except the great steadiness which has characterized them for many months. The German Scissors grinders still continue on strike, but they have offered to submit to the manufacturers' terms if the manufacturers would pay the debts contracted by them since the strike began—about the first of last October.

A brilliant entertainment to the Hardware trade is taking place this (Wednesday) evening at the residence of Henry Disston, No. 1515 North Broad street, Philadelphia. The attendance is very numerous, and representatives are present from the principal cities East and West. A special palace car was provided for the guests from this city, leaving Jersey City at 5 p. m. The above short telegraphic notice is all that has reached us up to going to press. In our next issue we will give full particulars.

The following are the discounts of the Greenfield Tool Co., Greenfield, Mass., from revised list of 1872, which they say is the lowest in issue:

Bench Planes, "White River" 3d Grade	dis. 50&10 %
" " "New York" 2d "	dis. 40&10 %
" " "G. T. Co." 1st "	dis. 25&10 %
" " " " with Eng. Irons	dis. 30&10 %
" " " " without Irons	dis. 25 %
" " " " Polished, all kinds	dis. 25 %
Moulding Planes and Plows, all kinds, 1st grade	dis. 25&10 %
Plane and Saw Handles	dis. 30 %
Gauges	dis. 40 %
Plane Irons, "Diamond" Stamp	dis. 10 %
" " " Polished all over	net %
" " "Mason Bros."	dis. 30 %
Plow Bits, Moulding and Rabbet Irons	dis. 10 %
Match Bits, Fillister and Dado Irons	net %
Plates, Cuts, Stops, &c	dis. 10 %

Their patent Adjustable Gauge for Planes are $1 each, net., and Patent Concave Forged Ox Shoes, 12 cents per lb. net.

The price list of the Howard Iron Works, Buffalo, contains illustrations and prices of a number of new goods. We print below the price lists and discounts of such articles as are now first offered to the trade:

Howard Parallel Bench Vise.
New Style—Discount 10 per cent.
Fixed.

No. 20, 2 inch Jaw	$4·00
" 25, 2½ "	5·00
" 30, 3 "	6·25
" 35, 3½ "	7·00
" 40, 4 "	9 00
" 45, 4½ "	11·75
" 50, 5 "	16 25
" 55, 5½ "	20·00
" 60, 6 "	24·00

Swivel.

No. 20, 2 inch Jaw	$4·50
" 25, 2½ "	5·75
" 30, 3 "	7·00
" 35, 3½ "	8 25
" 40, 4 "	10·75
" 45, 4½ "	14·00
" 50, 5 "	19·25
" 55, 5½ "	23·50
" 60, 6 "	28·50

Boxing and Cartage extra.

Bell Bottom Jack Screws.
Discount 10 per cent.

Diameter. Inches.	Len'th of Iron Barrel. Inches.	Price.	Diameter. Inches.	Len'th of Iron Barrel. Inches.	Price.
1¼	6	$2·50	2	16	$7·00
1¼	8	3·00	2	20	8·00
1¼	6	3·00	2	24	10·00
1¼	8	3·50	2¼	8	6·50
1¼	10	3·75	2¼	10	7·00
1¼	12	4·00	2¼	12	7·50
1¾	6	3·25	2¼	14	8·00
1¾	8	3·75	*2¼	16	9·00
1¾	10	4·00	*2¼	20	10·00
1¾	12	4·50	*2¼	24	12·00
1¾	14	4·75	*2½	8	7·50
1¾	16	5·00	*2½	10	8·00
2	6	4·00	*2½	12	8·50
2	8	4·25	*2½	14	9·00
2	10	4 75	*2½	16	9·50
2	12	5·25	*2½	20	11·00
2	14	6·00	*2½	24	13·00

Handles extra.
NOTE.—The sizes designated above by a star, thus (*2¼), are adapted for Locomotives.

Park Settees—Discount 10 per cent.
Ornamental.

No. 1, 4 feet 6 inches long	$9·00
" 2, 5 " 6 " "	10·00
" 3, 7 " "	13·00

Plain.

No. 1, 4 feet 6 inches long	$6·00
" 2, 5 " 6 " "	7·00
" 3, 7 " "	10·00

Warehouse Cart—Net

No. 1, 2 feet diameter	$25·00
" 2, 2½ " "	30·00

Warehouse Truck—Net.

No. 1	$15·00

The Francis Axe Co., Buffalo, have furnished us, under date of the 5th inst., the following price list of their goods:

Ridge Bit Chopping Axes—Bronzed.
Light.

	Stamped Francis Axe Co.	Stamped J. Russell
3 to 4, 3¼ to 4¼, 3½ to 4½, 3¾ to 4¾	$11·50	$10·50
Medium.		
4 to 5, 4¼ to 5¼	11·50	10·50
Heavy.		
4½ to 5½, 4½ to 6, 5 to 6	12·00	11·00

Rafting, Scoring, Wedge, Peeling, Firemen's and other styles, as desired, made to order.

Double Bitted Axes.
Light.

3½ to 4½, 3¾ to 4¾, 4 to 5	24·00
Medium.	
4½ to 5, 4½ to 5½, 5 to 6	25·00

Beveled Axes.

Single Bit 50 cents extra, Double Bitted, $1·00 per dozen extra.

Handled Axes.

Francis Axe Co's Extra Handles (1 dozen cases)	net, $14·00
J. Russell, No. 1, Extra Handles (1 dozen cases)	" 12·50

Broad Axes, Steel Poll, Discount 30 %

	Per dozen.
Ship Carpenters' Axes	$30·00
Western Pattern	32·00
Pennsylvania Pattern	32·00
New York Pattern	32·00
Ohio Pattern	32·00
Canada Pattern	36·00
Canada Pattern, 9 to 12	39·00

Boys' Axes and Hunters' Hatchets (In 1 doz. cases).—Dis. 30 %

Boys' Axes, Beveled, 26 inch Handles	$13·50
Hunters' Hatchets, Beveled	9·00

"George Washington" Hatchets (In 1 doz. cases).—Dis. 30 %

	Nos. 1.	2	3
Cast Steel Shingling	$8·50	$8·50	$9·00
" all Polish'd	9·00	9·50	10·00
" Lathing	8·00	8·50	9·00
" Claw	9 00	9·50	10·00
Solid Cast Steel Lth'g, Polish'd	11·00	12·00	13·00

Wide Bit Broad Hatchets (In 1 doz. cases).—Dis. 30 %

Nos	3	4	5	6
Width Bit	5 in.	5½ in.	6 in.	6¾ in.
Price	$13·00	14·50	16·50	18·00
Nos	7	8		9
Width Bit	7¾ in.	8½ in.		9 in.
Price	$19·50	22·00		25·00

Adzes (In 1 doz. cases).—Dis. 30 %

	Per doz.
Ship Carpenters'	$25·00
House Carpenters'	24·00
Railroad	25·00
Flat Head or Light Railroad	24·00

Among the above goods a new brand of Hatchets deserves the attention of the trade. They are appropriately and patriotically styled the George Washington, and which the manufacturers claim to be the best polished tool in market. Every Hatchet has a finely engraved head of Washington on the label. All the goods made by this company which we have ever seen, have been finely finished and tasty and attractive in appearance. We quote the following from their annual circular:

Having established a reputation on our goods second to none, we shall maintain the high standard of excellence by the continued use of the best brand of English steel, and we beg the trade to bear in mind that in this item alone it costs us fully 7 per cent. more to manufacture than from the best brands of domestic steel. Many makers are pretending to use the same garde, and advertise to that effect, while in fact they are using an inferior quality. Particular attention is paid to the refining and tempering of our axes, and prices will always be as low as the exclusive use of the best material and most thorough workmanship will allow. As heretofore, our axes will be bronzed and small tools painted red.

The Schweitzer Mfg. Co. are now the agents for the tools made by the Davis Level and Tool Co. The following are the prices and discounts of some new goods made by them.

Non-Adjusting Plumbs and Levels.
Discount 60, 10&10 %

No.	Per dozen.
102, Levels, Arch Top Plate, Two Side Views, Polished, Assorted, 10 to 16 inch	$9·00
103, Levels, Arch Top Plate, Two Side Views, Polished, Assorted, 18 to 24 inch	12·80
00, Plumb and Level, Arch Top Plate, Two Side Views, Polished, Assorted, 18 to 24 inch	16·00
0, Plumb and Level, Arch Top Plate, Two Side Views, Polished, Assorted, 24 to 30 inch	18·00

Adjustable Plumbs and Levels.
Discount 60&10 %

No.	Per dozen.
1, Patent Adjustab'e Mahogany Plumb and Level, Arch Top Plate, Two Side Views, Polished, Assorted, 26 to 30 inch	$27·00
2, Patent Adjustable Plumb and Level, Arch Top Plate, Two Brass Lipped Side Views, Polished and Tipped, Assorted, 26 to 30 inch	27·00
3, Patent Adjustable Plumb and Level, Arch Top Plate, Two Side Views, Polished and Tipped, Assorted, 26 to 30 inch	32·00
4, Patent Adjustable Plumb and Level, Arch Top Plate, Two Brass Lipped Side Views, Polished and Tipped, Assorted, 26 to 30 inch	39·00
5, Patent Adjustable Plumb and Level, Arch Top Plate, Two Ornamental Brass Lipped Side Views, Polished and Tipped, Assorted, 26 to 30 inch	48·00
6, Patent Adjustable Mahogany Plumb and Level, Arch Top Plate, Two Brass Lipped Side Views, Polished, Assorted, 26 to 30 inch	33·00
9, Patent Adjustable Mahogany Plumb and Level, Arch Top Plate, Two Ornamental Brass Lipped Side Views, Polished and Tipped, Assorted, 26 to 30 inch	48·00

We omitted in our last week's issue to speak of the large auction sale of Hardware made by Bissell, Welles & Millet, at 594 Broadway, Jan. 24, 25 and 26. Their catalogue was very voluminous, containing over 2000 lots of desirable goods, all of which were sold at very satisfactory prices; in fact, it being one of the most successful sales that has ever taken place in New York. The attendance was large (nearly every section of the country being represented), and the bidding spirited. The entire stock realized 80c. on the dollar, which, considering the depressed state of business, is remarkable, as the goods were all sold for net cash. Bissell, Welles & Millet will hold on the 23d and 24th of this month a trade sale of Hardware, Cutlery, &c. See advertisement, page 16. These sales are an important feature in their business, and will be held regularly every month during the spring and fall.

The Associated Press dispatches this morning contain the following:

PITTSBURGH, Feb. 9, 1875.

A fire broke out to-night, between eight and nine o'clock, in the hardware establishment of Whitmore, Wolf, Lane & Co., No. 50 Wood street, and before it could be checked destroyed the entire upper stories of the building. This was one of the oldest establishments in Pittsburgh, and had on hand a very large stock of goods, the greater part of which were destroyed, the goods on the first floor and in the cellar being ruined by water. The fire originated from a defective flue on the second floor. The loss on the goods will aggregate $75,000, which is fully covered by insurance. The damage to the building is also very heavy, the two upper stories and roof being destroyed. The building was owned by E. Lawrence, of Philadelphia, whose loss is also covered by insurance. A good deal of difficulty was experienced in getting water, many of the fire plugs being frozen.

V. G. Hundley, agent for the North Carolina Handle Company, informs us that he has bought out all the remaining stock of Handles in this city of the Greensboro Handle Works. These he will have for sale from stock here, in addition to a full line of Handles of all kinds made by the company he represents.

On our 9th page will be found the advertisement of the Yale Lock Mfg. Co.'s Works, with the recent enlargements. We wish our readers could see the exquisite order and system that pervades all the departments of this manufactory. It is in our opinion a model in this respect.

In an advertisement on page 20 will be found an illustration of the American Ice Chisel, a very handsome and neatly finished tool, admirably adapted for cutting ice. Among the advantages claimed for this Chisel, are the following: 1st. It will shave 100 pounds of ice to any size in five minutes; 2d. Its cleavage is as clear as that produced by a saw, as it is constructed on the principle of an ice saw; 3d. It saves the ice chest from destruction by preventing the pounding necessary with any other ice breaker in reducing ice, as an ice chest has but very little wear other than that produced by the jarring in breaking ice. These chisels are made in two styles, Japanned and Nickel Plated, and are sold at the following net list:

Ice Chisels, Japanned	per gross. $72 00
" "	per doz. 6 50
" Nickel Plated	per gross. 96 00
" "	per doz. 8 50

Lane Brothers, manufacturers of Swift's Mills, have just been granted a patent for improvements which they have incorporated in their Mills. These works rank among the oldest in the country, having been started by the patentee in a small way a quarter of a century ago, on the same spot as at present occupied, and the Swift Mill is now known far and wide, the manufacturers expressing their determination to make articles of the best quality only. Their advertisement on our 9th page shows the silver medal awarded them for the best Coffee and Spice Mill at the recent fair of the American Institute.

BRITISH IRON MARKET.

(*Specially reported by cable for The Iron Age.*)

WEDNESDAY, Feb. 10, 1875.

Scotch Pig.—During the week the market has been depressed, and prices are now lower than when last quoted, but it is believed that there is no legitimate reason for the drop; hence, it appears highly probable that an early recovery will take place. The following are maker's prices:

Gartsherrie, No. 1	89/
Coltness, No. 1	90/
Glengarnock, No. 1	86/6
Eglinton, No. 1	76/

Manufactured Iron.—Although there is a slight improvement in the demand, the market still rules dull, and prices are unchanged and nominal at £9. 10/ @ £10. 5/ for Best Staffordshire Bars.

Rails.—The market continues in same conditions as last reported, and Welsh are quoted unchanged at £6. 10/ @ £7. 5/.

IRON.

American Pig.—The market continues almost exactly as last reported. The demand is small, and the companies are obtaining $28 for the favorite brands, while those less liked can be had a shade less. We hear of no transactions on any other basis. We quote: No. 1 Foundry, $27 @ $28; No. 2 Foundry, $25 @ $26; Gray Forge, $23 @ $27.

Scotch Pig.—There have been some arrivals lately, and there is more Iron here than there has been, but still the stock is very small, and would be much reduced were not navigation suspended to so great an extent as it is. We note the sale of 100 tons Eglinton and 100 tons Coltness on private terms. We quote as follows: Eglinton, $33·50 @ $34; Glengarnock, $36 @ $37; Coltness, $37 @ $38.

Rails.—We hear of no sales of importance, and quote American at works, $48 @ $53. The Cleveland Rolling Mill Company have been awarded the contract for 12,500 tons Iron and 11,000 tons Steel Rails for the Cincinnati and Southern Railroad at $52·75 and $76·75, respectively, both currency. We believe this is the largest single contract ever taken by any American rolling mill.

Old Rails.—We hear of nothing to report except the sale of 150 tons Wrecked Rails at $28. The market is altogether nominal.

Scrap.—The stock is mostly concentrated in the hands of dealers, who are asking $35.

[*By Telegraph to The Iron Age.*]

The Stove Convention.

CHICAGO, ILL., Feb. 10, 1875.

The National Association of Stove Manufacturers met at noon to-day, Mr. G. F. Filley, vice president, in the chair. Over fifty delegates were present. The afternoon session was held at 4 o'clock, when Mr. John S. Perry, president, read his annual address, which was replied to in a speech of welcome by Mr. Wm. H. Whitehead, of Chicago. The following officers were elected for the ensuing year: President, S. S. Jewett, of Buffalo; vice presidents, G. F. Filley, of St. Louis, and W. H. Tafft, of Detroit. A committee was appointed to report on prices, and the convention adjourned to meet to-morrow (Thursday) at 10 a. m.

METALS.

Copper.—But a moderate business has been transacted during the week, 150,000 lbs. Lake selling at beween 21⅜c. and 22c. on the spot, mostly to dealers. Holders do not offer large lots, but it can still be procured in small parcels at 22c., at which we quote the market firm at the close. Baltimore can be had at 22c. in moderate quantities; for larger lots more would probably have to be paid. As soon as the demand from manufacturers revives, Lake Copper is likely to rise; at all events, nobody cares to part with it at 22c. for good round lots. The cable quotations from Europe have been of an unstable nature; Chili Bar within the past 8 or 10 days declining at first to £82. 10/, subsequently to £82, in order to recover to £83. Best Selected stood £89 on Saturday, a comparatively low figure. Charters on the West Coast for the fore-half of January again summed up 2600 tons pure, which caused a recoil from a slight improvement brought about by some activity in shipments to India. The market, in all likelihood, righted again on more moderate charters during the latter part of January. Messrs. Vivian, Younger & Bond's annual Copper review, dated London, January 1, winds up with the following remarks: "We entertain the opinion that, at the present range of prices, we are likely to receive an ample supply to meet the general requirements of the trade, and this view would seem to be confirmed by the substantial increase in prospective supplies from Chili, showing a quick response to the recent upward movement here during the last quarter, thus depriving the position, speculatively, of much of its attractive data, while, at the same time, relieving the consumers from an embarrassing uncertainty as to future supplies." We would add that Chili, since the great decline in Coal, can afford to sell Copper a great deal cheaper than was the case a year ago. The review referred to does not entertain the idea that had been started by others, that Japan will furnish them a continuous supply. They expect but 3000 to 4000 tons from here in all the present year. No change can be reported in the manufactures of Copper, which remain as follows: New Sheathing, 28c.; Bolts and Braziers, 30c.; Bronze and Yellow Metal Sheathing, 21c.; and Yellow Metal Bolts, 28c., net cash.

Tin.—Nothing to speak of has transpired in this metal, either on the spot or to arrive, and the market closes quiet at the following gold quotations: Straits, 21¾c. @ 22c.; L. & F., 21¼c. @ 21½c.; English Refined, 21¾c. @ 21⅞c., and Banca, 25½c. @ 26c. Singapore, on the 9th instant, cables Malacca Tin, $24 62½ per picul, against $24·75 on the 27th ultimo. Simultaneously Batavia wires the result of the Billiton sale there, which has been 59 guilders per picul, or be it the equivalent of 55 guilders the 50 kilos at Amsterdam. While receiving these telegrams from the East, we have the London dispatches also to hand, reporting Straits £92; L. & F., £96, and English Refined, £97. While Straits lost during the week but 10/, L. & F. came down a couple of pounds. *Tin Plates.*—In alluding in our report of the 27th ultimo to the December movement as a partial failure, we meant to imply that the anticipated duty raising would not be as great as had been counted upon by the operators, and nothing else. The new duty raises the cost of Coke Tin 25c. @ 30c., gold, per box, puts additional 35c. @ 40c. on Coke Terne, and 12c. @ 15c. on Charcoal Terne, while Tin Plates, costing over 34/, come in lower, especially Charcoal extras. The value of Plates has in no wise been enhanced since, although I. C. Coke, as well as I. C. Charcoal, are quite firm, and we have but to repeat our last quotation, the sales for the week, in a jobbing way, not having exceeded 2000 to 3000 boxes. We quote: I. C. Charcoal, $10, gold, per box; Charcoal Terne, $8·62½ @ $9; I. C. Coke, $8; and Coke Terne, $7·12½ @ $7·50, all gold.

Lead.—Sales of the week have summed up 300 tons Domestic at 5·87½c. @ 5·95c., gold, taken by manufacturers. These are low figures. Foreign has been quite steady at 6⅞c., gold, the asking figure, no sales being reported. The 10 per cent. reduction, if restored, would make the duty 2c., gold, instead of 1·80c. The decline in the London market has been 15/ according to the mail accounts of January 24. This is a drop hardly justified by the circumstances over there. If the receipts are liberal, it is on all hands admitted that consumers and the trade carry but light stocks. Hence we may, ere long, witness a rebound on the other side, the more so as the war in Spain seems interminable. The manufactures of Lead are firm at 8¾c., less 10 per cent., for a basis.

Spelter and Zinc.—Accounts from the other side remain firm, Breslau now being higher in proportion than the European ports, so much so that people in England and France are hesitating about subscribing to any further advance till they are actually compelled to do so. But the consumption there has increased in such an astonishing manner, that production has been unable to keep pace with it. Hence the light stocks at the leading centers. There seems to be no alternative left but to submit to the enhanced rates. Hamburg was bare of stock. Breslau stood 7¾ thalers. Here nothing has been done in Foreign, which we quote 7½c. @ 7⅝c., gold, and firm, though altogether nominally so, not even a sale "afloat" having been made. Domestic is in a more dilapidated condition than ever. The sales have amounted to but trifles in a jobbing way. Ordinary brands can undoubtedly be had at 6·30c. @ 6¼c., currency, while select ores would, we think, command 6⅝c. @ 6¾c., currency. *Sheet Zinc*, as is usually the case at this time of the year, is inactive, and cannot be quoted above 9¼c., gold, 9 by 36.

Antimony.—London is steady at £54. Here the arrivals have been tolerably steady, but have been taken off as readily, either on sales previously effected, or bought as they came to hand, an accumulation thus being prevented. We remain firm at 12½c. @ 12⅝c., gold, according to quantity.

COAL.

Nothing worthy of note has transpired in the coal market during last week, and outside of the retail trade there is no activity. It is generally expected that the programme for the year's business will be agreed upon sometime during this month, and will not probably be made public until some definite conclusion regarding the wages question is arrived at.

The quantity sent from the Schuylkill region for the last week was 5737 tons against 36,008 tons for the corresponding week last year.

The supply sent from all the regions for the last week was 134,175 tons Anthracite, and 36,766 tons Bituminous; for the week, 170,941 tons, against 264,188 tons for the corresponding week last year. Decrease, 93,247 tons.

The whole supply sent from all the regions so far this year is 1,330,581 tons, against 1,519,702 tons for the corresponding period last year; decrease, 189,121 tons, of which 178,976 tons are Anthracite.

The total production of Coal in the entire Pittsburgh region for the year 1874 is estimat-

ed as follows along the lines of the various roads on which they are produced:

COAL.

	Tons.
Pennsylvania Railroad	1,652,787
West Penn Railroad	194,008
Pittsburgh and Connellsville Railroad	403,976
Pittsburgh, Cin., and St. Louis Railroad	576,222
Allegheny Valley Railroad	240,165
Pittsburgh, Charleston and W. V. Railroad	30,096
Saw Mill Run Railroad	89,676
Pittsburgh and Castle Shannon Railroad	122,925
Monongahela Slackwater	2,196,153
Cleveland and Pittsburgh Railroad	273,205
Erie and Pittsburgh Railroad	260,972
*Pittsburgh, Ft. W. and Chicago Railroad	1,282,410
Total	7,322,595

COKE.

	Tons.
Pennsylvania Railroad	961,275
Pittsburgh and Connellsville Railroad	630,729
Monongahela Slackwater	32,375
Total	1,624,379

*Mahoning Valley estimated.

These returns give a total production of Coal and Coke in the Pittsburgh region of 8,946,974 tons of Coal and Coke, or 219,677,850 bushels of Coal, and 97,462,740 bushels of Coke, making a grand total of production of 317,140,790 bushels of Coal and Coke.

We quote as follows: Anthracite, $4·75 to $6·35; Cumberland, $6·50 to $7; West Virginia, $7·40; James River Steam, $6·25; James River Carbonite, 9; Kanawha House, $14·25; American Gas $7 to $7·75; American Cannel, $13; Pennsylvania and Westmoreland, $7 65; Murphy Run, $7·40; Newburg Orrel, $7·50; Sterling Ohio, $12; Ince Hall, $17 to $18; Liverpool House Cannel, $18; Liverpool Gas, $11; Newcastle Gas, $8; Scotch, $9.

The Coal transported over the Cumberland Branch Railroad during the week ending Feb. 6, 1875, amounted to 73 tons, as against 2276 tons shipped in the corresponding period of last year, showing a decrease of 2203 tons. Over the Cumberland and Pennsylvania Railroad, for the same period, the shipments were 15,299 tons, against 17,990 tons shipped in 1874, a decrease of 2691 tons. The aggregate amount of Cumberland Coal shipped by the various companies so far this year amounts to 95,440 tons.

OLD METALS, PAPER STOCK, &c.

We have no perceptable improvement to report in the condition of this market since last week. There has been a slight call for some articles, but as a whole the market is extremely dull. Book Stock has been in better demand than for some time past. Rags are steady, and prices are firm at quoted rates. Hemp and Grass Rope are without request, and quotations have a downward tendency. Old Metals are dull and declining. Stocks are not very large, though it is in excess of the demand. Other articles present no material change. We quote the following as the current purchasing rates:

Old Metals.—Copper, 16c. @ 17c. per lb.; Yellow Metal, 11c.; Brass, 10c. @ 12c.; Composition, heavy, 13c. @ 14c.; Lead, solid, 5½c.; Tea Lead, 4¼c.; Zinc, 4¼c. @ 4¾c.; Pewter, No, 1, 18c.; do., No. 2, 8c. @ 12c.; Spelter, 5c. @ 5¼c., Wrought Iron, 1¼c.; Sheet do., ½c.; Cast, do., ½c.; Machinery, do., ¾c.

Rags, &c.—Canvas, Linen, 5c. @ 5½c.; do. Cotton, No 1, 6c. @ 6¼c.; No. 2, 2½c.; White, No. 1, 6c.; No. 2, 4c.; Colored, do., 2c. @ 2½c.; Mixed, Woolen, 2c. @ 3c.; Soft, do., 4½c. @ 5c.; Gunny Bagging, 1c.; Jute Butts, 1¾c. @ 2c.; Kentucky Bagging, 3c.; Book Stock, 3c.; Waste Paper and Scraps, 1½c.; Kentucky Bale Rope, 4c.; Oakum Junk, No. 1, 4½ @ 5c.; do. No. 2, 3c.; Tarred Shaking, 1c. @ 1¼c.; Grass Rope, 2½c. @ 2¾c.

IMPORTATIONS.

Of Hardware, Iron, Steel and Metals into the Port of New York, for the week ending February 9, 1875:

Hardware.

Baldwin Bros.
Gun barrels, cs., 4
Boker Hermann & Co.
Mdse. pkgs., 20
Drexel, Morgan & Co.
Gun barrels, cs., 3
Eggers & Heinlein,
Guns, cs., 8
Fuller Bros.
Mdse. pkgs., 272
Field A. & Co.
Mdse. pkgs., 104
Mdse. cks., 1
Anvils, 39
Knowland F.
Wire rope, coils, 2
Lau & Gartichs,
Mdse. pkgs., 250
Morris L. W.
Cases, 1
Merchants' Dispatch Co.
Chains, cks., 5
Casks, 1
Spies, Kiesam & Co.
Mdse. pkgs., 1
Guns, cs., 5
Schoverling & Daly,
Arms, cs., 7
Waefalaer & Duyster,
Iron nail hooks, 103
Weed & Cornwell,
Casks, 2
Order.
Cases, 9
Casks, 1
Packages, 5

Iron.

Gomez, Rionda & Co.,
Scrap, anchors, 5
Scrap, chains, 4
Hughs F. W. J.
Rods, bdls., 1
Naylor & Co.
Bars, 12,613
Order.
Pig tons, 300

Steel.

Colby J. L. & Co.
Wire, bdls., 169
Dale John G.
Bundles, 18
Drexel, Morgan & Co.
Bars, 966
Hughs F. W. J.
Pieces, 8
Robbins C. & Son,
Mdse. pkgs., 124
Sanderson Geo. & Co.
Bundles, 42
Cases, 8
Order.
Scrap, spring, kilos., 433
Bundles, 192

Metals.

Byrne Joseph & Co.
Tin plates, bxs., 360
Barthold R. R.
Scrap, copper, bxs., 12
Coe & Co.
Brass, bbls., 348
Hughs F. W. J.
Lead, pigs, 3
Phelps, Dodge & Co.
Tin plates, bxs., 5698
Windmuller L. & Roelker
Sheet zinc, cks., 15
Sheet zinc, cs., 30
Order.
Pig, lead, 3964
Laminated zinc, bbls, 12
Tin ingots, 600

PHILADELPHIA.

PHILADELPHIA, Feb. 9, 1875.

The market remains without material change to note, the extremely cold weather making it difficult to move lots of Iron sold or to effect coastwise shipments. A fairly active demand exists for Pig Metal at last week's best prices, but we do not note any advance. Furnace companies are not anxious to contract, at present prices, ahead, and generally express the idea that $30 will rule for No. 1 Foundry within 30 days. Stocks on the Lehigh are reported to be used up, and in the Schuylkill region a number of furnaces are out for want of coal. In Manufactured Irons there is a better feeling all along the line. Rails are more sought at $1 so $1·50 per ton better prices, while Steel Rails are well held up. It is reported that the award for both Steel and Iron Rails for the Cincinnati Southern Railway has been made to the Cleveland Rolling Mill Company. Advices from Washington indicate a prospect of the Texas Pacific Bill passing Congress, which will give a decided impetus to railroad material of all kinds. Bars are firmer, with reported improvement in orders by city mills, and some considerable sales. Scrap and Old Rails are without change to note. We continue last weeks quotations, viz:

PIG IRON.—No. 1, $28; No. 2 $26. Gray Forge, $25 to $27, as to grade.

RAILS.—$48 to $55, as to make and section.

BARS.—2·7 to 2·8 cts. per lb.

OLD RAILS.—$29.

Scrap.—$31 to $33.

Among the sales are included the following: *Pig Iron*—2000 tons No. 1, $28, at Hoboken; 500 tons No. 2, $25·50, Hoboken; 1000 tons Gray Forge $24, at furnace; 500 tons Gray Forge, $26, here; 1000 tons White and Mottled, $20, at furnace. *Rails*—1500 tons 40 lb. Scranton, $50, at tidewater; 1000 tons Pennsylvania, $50, at mill; 1000 tons extra grade, said to be $55, at mill; 2000 tons Steel Rails at $76; 375 tons Steel Rails, equal to $51, at mill. *Bars*—1000 tons, 2·65c. per lb.; Scrap, 100 tons Wrought, at quotations, and several lots Cast at $21.

PITTSBURGH.

PITTSBURGH, Feb. 8, 1875.

PIG IRON.—Trade in Pig Iron continues fairly active, all that can reasonably be expected under existing circumstances, and the market is strong with an upward tendency. While there has been no quotable advance, yet there are very few if any sellers now at prices current a week ago. Notwithstanding the lock-out, a number of mills have been buying for two or three weeks past all that offered at anything under what were considered market rates at the time, and but for the fact that there has been a difference of fully one dollar per ton during the time in question between the views of buyers and sellers, there is no doubt but what the volume of business in the aggregate would have been considerably larger than it has. When it could have been obtained for $22, buyers would not bid over $21, and so it has been, and is still, and no doubt will continue while the market continues tending upward, as has been the case ever since about the first of the year. The feeling appears to be gaining ground that the lock-out will soon be ended, hence the mills have been and are still inclined to anticipate future wants, feeling pretty well convinced that as soon as the puddlers resume work there will be an increased demand, as very few of them had any stock when they shut down. In addition to an increased demand, it is generally conceded that the production, not only here but at all points tributary to this market, has been very much curtailed within the past month or two, and, furthermore, it is intimated that the stock of good standard Gray Forge Irons is not as large as many people have been led to believe, as it is alleged that in consequence of the ruinously low prices a much larger proportion of inferior ores have been used. Until within the past two or three days, $23, 4 mos., was considered the ruling price, but now, owners are asking from $23·50 to $24, 4 mos.; there was a sale of 500 tons at $22 cash, and 1000 tons on private terms, which is ominous in the present condition of the market. There is also an increased demand and firmer feeling in the market for Foundry Irons, but prices are not quotably higher; No. 1 Bituminous and Coke, $26 to $27, 4 mos., and No. 2, $24 to $25.

MANUFACTURED IRON.—While orders are not, from all that I can learn, coming in as freely as usual at this particular time, yet they are not being solicited, and, furthermore, the mills are getting all they want in the present condition of affairs. The general tone and spirit of the market is considerably firmer in view of the very light production, reduced stocks and increased cost of the raw article, and orders are unhesitatingly and peremptorily refused at rates which would have been accepted a few weeks ago. Merchant Bars may now be quoted on a bases of 2·35c. to 2·40c. In case of a further advance our Pittsburgh mills are very well situated, as they are not, as a rule, sold ahead, as they have been refusing ever since the lock-out to book orders for future delivery at current rates; they were willing to accept orders and charge market price at time of delivery, but not otherwise.

NAILS.—Orders have commenced to come forward, some of the factories have started up and others will soon follow; Chess, Smith & Co. started up last week, and Zug & Co. will start up this week, and the indications are that they will all be in full blast within the next week or two, as there is no stock here of any consequence. Prices are firmer in sympathy with Iron, but as yet not quotably higher; $3·15, 60 days, with usual two per cent. discount for cash. There is a continued steady demand for Horse Shoes, and the market is firm but unchanged at $5·25, cash, for 100 keg lots.

SCRAP IRON.—The demand is scarcely as brisk as it was a few weeks ago, but the supply here is very much reduced, and prices are fully sustained; No. 1 Railroad Scrap quotable at $32 to $33, delivered at mills. There is not much inquiry for Scrap Steel, but the stock, not only here but elsewhere, appears to be unusually light, and the market is firm in consequence. The last sales of car wheels reported were at $24, 4 mos, but it is not probable that they could be obtained now under $25, if at that.

STEEL.—Some of the mills report business as picking up, and it is hoped and expected that it will continue to improve, as orders for the spring and summer trade should commence to come forward pretty freely before long; at present, however, but few if any of the mills are working up to their full capacity.

THE LOCK-OUT.—It begins to look as if the lock-out was drawing to an end. Spang, Chalfant & Co. have started up a number of their furnaces, the puddlers agreeing to accept the situation, and it is rumored that some of the other mills can start up their furnaces whenever they are so disposed at $4·50. The leaders of the strike, however, still refuse to throw up the sponge, but the indications are that they cannot hold out much longer as many of the puddlers are anxious to resume work.

The Pittsburgh *Commercial*, of the 7th inst., says: The market for raw Irons was firm, with a fair inquiry for favorite brands. The receipts during the week have steadily increased, especially bituminous coal smelted from Lake Superior Ore. A large portion, however, of the present receipts go to fill up previous contracts. There is but little offering for present delivery, and last week's prices were steadily maintained. Prices are fully $1 to $2 per ton better than at the opening of the year. Muck bar is also arriving pretty freely, while the receipts of scrap iron are quite large. From our sales, noted below, it will be seen that prices touched their lowest point some weeks since. The following are the sales reported:

BITUMINOUS COAL SMELTED FROM LAKE SUPERIOR ORE.

1,000 tons gray forge	$22·00—cash.
500 tons gray forge	23·00—4 mos.
300 tons gray forge	23·00—4 mos.
300 tons gray forge	23·00—4 mos.
300 tons gray forge	23·00—4 mos.
100 tons gray forge	23·00—4 mos.
100 tons gray forge	23·00—4 mos.
100 tons gray forge	23·00—4 mos.
80 tons gray forge	23·00—4 mos.

MUCK BAR.

200 tons muck bar	$40·00—cash.
30 tons muck bar	private terms.

CHARCOAL.

131 tons Nos. 1 and 2 foundry H. R.	$27·00 @ 32·00—4 mos.
20 tons No. 1 foundry	30·00—4 mos.

ANTHRACITE.

100 tons No. 1 foundry, extra	$29·00—4 mos.

SCRAP IRON.

The market was firm, with a good demand. The sales continue liberal. The receipts were also large. The rates for the various kinds were as follows:

Car wheels	$24·00 @ 25·00
Light scrap	28·00 @ 30·00
No. 1 axles	38·00 @ 40·00
No. 2 car springs	40·00
No. 1 molding metal	18·00
No. 1 railroad scrap	28 00
No. 2 railroad scrap	25·00
Stove pipe and light iron	14·00
No. 1 wrought scrap	28·00 @ 30·00

CINCINNATI.

Messrs. L. R. HULL & Co., under date of Feb. 8, write us as follows: PIG IRON.—There has been a large demand, chiefly for future delivery, which has been freely met by some furnaces, while others are holding off, believing they will realize better figures. Forge Irons are in active request, and best grades scarce. Buyers show no disposition to take hold when higher figures are asked.

HOT BLAST CHARCOAL.

Hanging Rock No. 1 ₱ ton	$27·00 @ 28·00—4 mos.
" " No. 2	26·00 @ 27·00—4 mos.
" " Forge	24·00 @ 25·00—4 mos.
Tennessee No. 1	26·00 @ 27·00—4 mos.
" Forge	24·00 @ 25·00—4 mos.
Alabama No. 1	26·00 @ 27·00—4 mos.
Missouri No. 1	27·00 @ 28·00—4 mos.
" No. 2	26·00 @ —4 mos.

HOT BLAST STONE COAL.

Missouri No. 1 ₱ ton	$27·00 @ 28·00—4 mos.
" Forge	25·00 @ —4 mos.
Ohio No. 1	26·00 @ —4 mos.
" Forge	24·00 @ 25·00—4 mos.
Scotch Pig, No. 1	26·00 @ 27·00—4 mos.

COLD BLAST CHARCOAL.

Hanging Rock Car Wheel ₱ ton	$35·00 @ 50·00—4 mos.
Missouri " "	43·00 @ 45·00—4 mos.
Kentucky " "	40·00 @ 42·00—4 mos.
Tennessee " "	36·00 @ 42·00—4 mos.
Georgia " "	40·00 @ 42·00—4 mos.
Alabama " "	40·00 @ 42·00—4 mos.
Machinery and Forge	40·00 @ 42·00—4 mos
Blooms	70·00 @ 90·00—4 mos.

LOUISVILLE.

Messrs. GEO. H. HULL & Co., under date of Feb. 8, writes us as follows: The market is decidedly firm, but without change in prices. The usual time, 4 mos., is allowed on the quotations below:

HOT BLAST CHARCOAL.

No. 1 F'dry, from Hanging Rock Ores	$26·00 @ 28·00
" 2 " " "	24·00 @ 25·00
" 1 Forge, " " "	23·00 @ 24·00
" 1 F'dry, from Tennessee Ores	25·00 @ 26·00
" 2 " " "	24·00 @ 25·00
" 1 Forge, " "	23·00 @ 24·00
" 1 F'dry, from Alabama Ores	25·00 @ 28·00
" 1 " " Iron Mountain Ores	28·00 @ 30·00

HOT BLAST STONE COAL.

No. 1 F dry, from Missouri Ores	28·00 @ 30·00
" 2 " " "	27·00 @ 28·00
" 1 Forge, " " "	26·00 @ 28·00

COLD BLAST CHARCOAL.

Car Wheel from Hanging Rock Ores	40·00 @ 50·00
" " Tennessee Ores	35·00 @ 38·00
" " Alabama Ores	38·00 @ 40·00
" " Georgia Ores	38·00 @ 40·00
" " Missouri Ores	38·00 @ 40·00
" " Kentucky	30·00 @ 40·00

BALTIMORE.

Messrs. WYETH & BROTHER, Iron and Steel merchants, South Charles and Lombard streets, report us the following prices under date of Feb. 9: Trade still rules depressed and unsatisfactory, orders are placed with much caution, and chiefly for immediate wants. We quote the market dull with unchanged list.

AMERICAN REFINED BAR IRON.

1 to 6 wide by ¾ to 1 thick	2·6-10 to 2 7-10c. ₱ lb.
1 to 4¾ wide by 1½ to 2 thick	
Round and square, ordinary sizes, from ¾ to 2 inclusive	2 6-10 to 2 7-10c. "
Hoop Iron, 1½ wide and upward	4½ to 4¾c. "
Band Iron, from 1¼ to 4 in. wide	3¾ to 3½c. "
Horse Shoe Iron ¾ to 1 wide by ¾ to ½ thick	4 to 4¼c. "
Norway Nail Rods	6¾ to 7c. "
Black Diamond Cast Steel, Flats, Squares and Octagon, ordinary sizes	15½ to 16c. "
Machinery Steel	11 to 11½c. "
Cast Spring Steel	10 to 10½c. "
Homogeneous Steel Plate	10½c. "
Perkins' Horse Shoes, per keg of 100 lbs	$5·87½
" Mule Shoes " "	6·87½

Common Horse Nails, from 14c. to 18c per pound.

	10	9	8	7	6
Putnam Horse Nails	23	24	25	26	28c. per lb.
	10	9	8	7	6
Globe Horse Nails	23	24	25	26	28c. per lb.

R. R. Spikes 5½ by 9-16 at 3c to 3¼c. per lb.

MESSRS. HOFFMAN, THOMPSON & CO., Iron commission merchants, 23 and 25 South Frederick street, under date of Feb. 8, report the Pig Iron market as follows: There has been rather more inquiry for Irons than for some time past, but no change in prices. We quote:

Baltimore Charcoal Pig Iron	$32·00 @ 35·00
Virginia " "	30·00 @ 33·00
Alabama " "	28·00 @ 30·00
Anthracite No. 1	27·00 @ 28·00
" No. 2	25·00 @ 26·00
" No. 3	23·00 @ 25·00
White and Mottled	17·00 @ 21·00

ST. LOUIS.

Messrs. SPOONER & COLLINS, Iron commission agents, 409 North Third street, St. Louis, under date of Feb. 5, report the Iron market as follows: The market is firm at prices quoted below. The demand is increasing, and with light stocks at most of our stone coal furnaces, and a desire on the part of all of our charcoal furnaces to realize better prices, we feel very safe in anticipating an early advance.

Mo. Stone Coal, No. 1 F'dry	$32·00 @ 33·00—4 mos.
" " No. 2 F'dry	28·00 @ 30·00—4 mos.
" " Mill	27·00 @ 28·00—4 mos.
" Charcoal, No. 1 F'dry	30·00 @ 32·00—4 mos.
" " No. 2 F'dry	28·00 @ 30·00—4 mos.
" White and Mottled	30·00 @ 31·00—4 mos.
Penn Charcoal No. 1 F'dry	29·00 @ 32·00—4 mos.
American, Scotch, "Cherry Valley"	39·00 @ 43·00—4 mos.
Mo. Charcoal Blooms	75·00 @ 80·00—4 mos.

FOREIGN.

FRANCE.

(*Moniteur des Interets Materiels.*)

PARIS, Jan. 24, 1875.—*Metals.*—Prices in the European metal markets have been, on the whole, tolerably well sustained during the week under review, but the dealings have been confined almost altogether to supplying the more immediate requirements of consumers, and but few contracts for future delivery were passed. Speculators for a rise or fall evidently hesitating while the labor question is again looming up in England with its disturbing elements. *Copper.*—Some firmness and a faint rally was observable early in the week in the London market, in consequence of some bars being purchased for consumption from second hands, and a demand having sprung up for Copper and Yellow Metal for India, and a recovery of from ten to twenty shillings was effected on the strength thereof, when, three days ago, the Chilean charters were telegraphed, announcing 2600 tons pure for the fore part of January, which had a quieting influence, without for the moment producing a decline. Subsequently, however, both the English and Continental markets weakened under the news. Our own quotations, after some slight fluctuations, finally steadied as follows: Chili Bars, deliverable at Havre, 222·50 francs; Ingots, 230; English Tough Cake, 230; and pure Corocoro Ore, 230. At Marseilles the previously reported firmness has been upheld on the basis of 230 francs for Ingots. *Tin* in the Dutch markets has gradually quieted and softened down from 58¾ to 57¾ guilders. London has followed in the wake of this weakening tendency in Holland, weighed down moreover by the heavy arrivals of Straits and Australian Tin, and a serious breakdown would have been unavoidable but for the steady consumptive demand, which, to a certain extent, in England at least, has kept pace with the fresh supply to hand. Some arguments in favor of Tin are again put forward in England. Holders there seem to feel confident that prices cannot decline much, now that the visible supply has been so accurately ascertained through the siftings of all the annual reviews that have been published. This may hold good with respect to Banca, Straits and Billiton, but will not apply so well to Australian, from where every mail brings some astounding news regarding the rapid development which production in that distant colony has taken for the past year or two, setting at naught all the fine calculations of Dutch and English Tin holders. Tin values have been sustained here in the meantime, and we are able still to quote Banca, deliverable at Paris, 265 francs; Straits, 255; and English, at Havre or Rouen, 250. Marseilles keeps steady at 250 for Billiton and 255 Straits. *Lead*—The influx of Spanish Lead into the English markets and into our own Marseilles in increased quantities, has not failed to bring about quite a drop at London of 15/ during the week, where good English Soft Pig is being sold at £23. 5/, and Spanish at £22. 10/, while Marseilles is altogether nominal at 52 francs. A good many people seem of opinion that, for the time being, the metal has touched bottom, and that the possible pacification of Spain, doubtful as it is, has now been sufficiently discounted, while, with the reduced stocks in first and second hands, the recent arrivals will soon be absorbed. It would not be surprising if a slight rebound took place ere the month comes to a close. We have been tolerably well supported here at between 58 and 59 francs, deliverable at either Paris or Havre. *Spelter.*—The position of this metal has been an exceptional one pretty much throughout the past year, and thus far during the present one seems to again pursue its own course, due, apparently, to the fact that consumption is fully able to take care of the by no means increasing supply. Hence, both the German and English markets have been firm and steady, and as we are large consumers and no producers of the metal, we have necessarily to take their ruling for a guide. Thus ordinary Silesian commands £23. 15/ at London and Hull, the equivalent of which here is 63¾ francs. *Iron.*—There has been thus far no amelioration worth noticing in the French Iron market, and from all appearances the general flatness observable will not wear away as speedily as we at first were inclined to hope. Thus the downward tendency in Pig Iron remains as yet unchecked, and will, after a while, affect the value of Merchant Iron. The Meurthe and Moselle remain in the same state of stagnation. The declining tendency in Iron remains, in fact, unchecked both in the north and east of our country, notwithstanding a reduced production of the raw material. Our export to foreign countries has been steadily on the decline, as they have begun to suffice themselves. *Coal.*—Although the supply had been purposely allowed to run low, the gradual decline that had been initiated has continued unchecked.

BELGIUM.

(*Le Commerce.*)

BRUSSELS, Jan. 24, 1875.—*Iron.*—No recovery can as yet be reported in our Iron trade, which remains as stagnant as it was during the holidays. *Coal.*—Iron industry being so slow in regaining its past activity in Belgium, our companies have of necessity adopted the plan of curtailing production, and limiting it to the filling of the ordinary run of orders from gas works and domestic consumers for household purposes. A decline in prices has thus been prevented. The strike in the Sambre region has been partially compromised and partially resumed several times. We presume it will not last long, and a lasting and mutually acceptable arrangement will be perfected between the miners and their employers.

GERMANY.

(*Borsenhalle.*)

HAMBURG, Jan. 23, 1875.—*Metals.*—*Copper.*—The comparatively still heavy charters that are being made on the West Coast are not calculated to lend strength to the European Copper markets in general and our own in particular. We nominally quote Lake Copper 115 marks, here; Chili and English, at Berlin, 95 to 95½, and at Stettin, 99 to 104. *Tin.*—Notwithstanding some attempts made in England to bolster up this metal, its tendency has remained a drooping one there, as well as in Holland and Germany, and we quote, merely in a nominal way, Banca, here, 107 to 108 marks, and English, 105 to 107, while at Berlin the former ranges between 106¼ and 106½, and the latter 101¾ and 102 marks. *Lead* has resisted the English and French decline tolerably well, which is due to the fact that German consumption is more exclusively confined to the Domestic article, while the Spanish arrivals have directly affected those markets, and but little Peninsular Lead reaches us even in times of its abundance. We have thus remained steady and unaltered here at previous quotations; Berlin quotes 23 to 23¼ marks, and Stettin, 27. *Spelter* remains firm at 25 to 25½, here, 24½ to 25¾ at Berlin, and 25½ at Stettin, where spring futures continue firm at 25 marks.

HOLLAND.

(*Koch & Vlierboom.*)

ROTTERDAM, JAN. 19, 1875.—*Tin.*—The market is quiet. *Banca*, spot, has been done at 58¾, in order to subsequently decline to 57¼, while April and May futures of *Billiton* have been dealt in at 56 to 55¼.

CHINA.

(*Arnhold, Karberg & Co.*)

CANTON, Dec. 23, 1874.—*Metals.*—*Lead.*—Prices have declined 10c. per picul, and there is only a hand-to-mouth business going on. *Tin Plates.*—The demand has quite subsided, and best makes are unsaleable at better than $8 per box, being a decline of 30c. per box on previous currencies. Stocks of *Tin* are small, but the demand is languid, and holders have had to submit to a concession of 25c. per picul, in order to induce business. *Quicksilver.*—The efforts of some holders to realize have led to a further decline of $12 to $15, sales having been effected at $215 to $217 per picul. At the close, however, the market is steadier, and the feeling is again toward stiffer prices. *Yellow Metal* is more inquired for and firm at quotations. We quote Lead, $7·40 to $7·80 per picul; Tin, $24 to $25·75; and Quicksilver, $216 to $218. *Exchange*, 5 months' sight on New York, 4½ per cent discount.

EAST INDIES.

(*Aitken, Spence & Co.*)

COLOMBO, Ceylon, Dec. 29, 1874.—*Plumbago.*—Prices continue nominally at last quotations, and there is nothing new to record. The Queen of the Fleet will likely be ready for sea before the middle of January. We quote free on board with commission and exchange at par, *Lump*, cleaned, including packages, per ton and duty, 336/; *Chip*, 189/, and *Dust*, 126/; freight to New York, 75/ per 20 cwts. The market closes quiet, but steady. There were exported from Colombo and Point de Galle, from Oct. 1 to date altogether, 22,283 cwts., of which to the United Kingdom, 18,436; to the European Continent, 731, and to the United States, 3116, against 15,180. Decrease of shipments to the United States thus far, 12,064 cwts. *Exchange*, 1/11¼ to 1/11⅝.

The Lead Movement in England and America.

English and American "Annual Lead Reviews," published last month, contain a good many items which deserve more than a passing notice. To begin with England, we extract from them some instructive passages. One of the London reviews expresses itself to the following effect: "The merchandise of lead is becoming steadily a more lucrative business. It is a marketable and steady metal. During the year we imported to the extent of 63,000 tons, about 2000 tons more than in the preceding year. The declared value in 1874 was over £1,500,000, and nearly £ ,500,000 the previous year. During the year we exported of British lead to the amount of £835,000, about £75,000 more than in 1873. The exports are very general, our best customer being China, which takes sheet lead in large quantities, last year one-fourth of the whole. Australia also imports lead from us." Another review has the following: "Lead mining exhibits a greater extent of prosperity and activity than, perhaps, it has ever before been our province to record, but so many opportunities exist for developing lead and silver-lead mines at a comparatively small amount of cost, and so certain is it that a market at which remunerative prices for these useful commodities can be obtained, at the same time so free are they from the drawbacks arising from sudden and extreme fluctuations in value to which other metals are subject, that we confess we are surprised, not that increased efforts are being made to extend this branch of mining industry, but that it should have remained so long without receiving that amount of attention which it undoubtedly demands. Beside the facilities which many parts of the Kingdom possess for producing or extracting lead ore from the matrix or native rock, the pursuit of lead mining has many other advantages worthy of consideration, such as, for instance, the purity and abundance of the ores of our country, which are rarely surpassed by those of any other, also that the uses to which this metal is applied are so varied and extensive, and its importance in connection with trade and manufactures so great, as to necessitate the importation annually of a quantity equal to, if not in excess of, that extracted from the mines already worked by us at home; and, if last, not least, is the fact that the prices obtained for ore continue to be remunerative and steady."

According to another report the British lead movement for the past three years has been as follows:

	1874. Tons.	1873. Tons.	1872. Tons.
Import	63,000	60,303	70,069
Export—Pig, rolled, sheet, piping and tubing	37,000	32,209	44,330
Excess of imported lead retained	26,000	28,094	25,739

Although, as we have shown in previous articles, the amount of ore raised had, from 101,598 tons in 1868, declined to 73,500 in 1873 (and the movement in 1874 leads to the conclusion that the output was no better last year), the business of lead mining is in general terms represented as having been most satisfactory. The remunerative part of the business must have fallen into the latter half of last year, when lead, from £20 per ton, gradually recovered the opening figure of the year of £24.

Alluding to the same subject, one of the New York reviews remarks: "The production in England has decreased within a few years' time 17,000 tons, or nearly one-quarter, so that peace in Spain, or American industry and railroads, must be the means of making good the deficiency."

According to this report it appears that the supply from Nevada and Utah in 1874 has not been less than in 1873, while that from the Far West was lessened in the early part of the year, owing mainly to the want of capital, and not to any failure of the mines. It goes on to state that large quantities of ore are in sight in New Mexico, waiting for railroad transportation yet to be established. It then draws a promising picture of developments in Missouri, winding up with the following remarks on that locality: "The mining interests of Missouri generally seem to be inspired with new life at all points, and there is no doubt that the present systematic and scientific work will develop the State a hundred-fold more rapidly than the by-gone superficial prospecting."

According to the figures before us, the United States in 1874 produced from native ores 46,500 tons, against 29,000 in 1873.

Our imports of lead we were thus able to reduce by degrees in the following striking manner:

	Tons.		Tons.
1862	36,300	1869	35,111
1863	12,600	1870	28,690
1864	27,900	1871	28,000
1865	13,600	1872	23,350
1866	27,300	1873	22,000
1867	23,225	1874	18,000
1868	23,255		

In other words, we imported during thirteen years, altogether, 319,131 tons, or be it, on an average, 24,548. The necessities of the war compelled us to draw an unusually large amount from abroad in 1862, while we imported a very small quantity the following year, owing to prostration in the building trade. In 1864 we had to make up for this lessened importation, but again relapsed into inactivity in 1865, since when, with reviving elements of trade and industry, we have remained extensive importers till our own lead production for a year or two past enabled us to dispense, to a certain degree, with foreign lead.

At this point of investigation the review we have been quoting from remarks: "The decrease of importation into New York is owing to the fact that government has supplied the demand for ordinary lead, and that much of the corroding lead is now shipped direct to the Atlantic seaports. The demand for ordinary foreign at present comes chiefly from cartridge manufacturers, who receive the drawback on all lead exported in cartridge form.

In further expatiating upon American lead industry, the same source of information furnishes some valuable details regarding the general result of lead refining in this country, and arrives at the following conclusions: I. "That the business of desilverizing is overdone, in which case the ores that remain will make it pay, if too many new concerns do not organize." II. "That the business is one which requires long and thorough training on the part of workmen, as well as superintendent, in all its branches, and that the money lost in it has been expended in purchasing experience which can only be of benefit to those who still continue the work." *III. "That wastage and

shrinkage, loss of interest and commissions enter so largely into this business as to deceive and delude novices, and, thereby cause them to compete in buying bullion at prices which old stagers know to be ruinously high and devoid of profits. Whatever the truth in the matter may be, the results show that the business must be conducted with more than usual prudence and knowledge."

Summing up all that precedes, it would seem that lead mining, both in England and the United States, proceeds satisfactorily, although general production in the former country has been seriously on the decline since 1868, while we are as rapidly expanding. That while (as we have shown in an article dated January 21, 1875) England has drawn as much as 524,307 ozs. silver from 73,500 tons of lead ore in 1873, against but 561,906 ozs. from 99,330 tons in 1855, desilverizing has in this country given the following result, as sketched by our informant: "Out of about twenty desilverizing establishments in the United States we note six commercial failures in 1874, beside the fact that two others have stopped work, and still two more are offered for sale. The percentage, therefore, of refining and desilverizing works that have apparently found it to be a non-paying business is nearly one-half."

The articles that have been written in these columns on "technical education," will be about the best answer by way of comment to the weighty reflections contained in the lead review we have cited from. Until the business of lead refining be conducted with an adequate capital, and with the most thorough experience and knowledge, the general result will be as disastrous in the future as it is in the present. This is all the more to be regretted, since it is shown beyond peradventure that the future which awaits us in this lead branch is comparatively as great and brilliant as that in any other from among the many mineral resources in which our country abounds.

The Mineral Wealth of the Shenandoah.

A correspondent of the Reading *Times* says:

If we carefully examine into the great mineral resources of this country, represented largely in the Allegheny coal field, running from Pennsylvania to Alabama, there will be found much to interest alike the capitalist and workingman. This coal field contains an area of 55,000 square miles, and over one thousand billion tons that have proved to be the best for iron manufacturing purposes in the known world.

The hundreds of millions of tons of coal that have already been mined also plainly indicate that the cost of mining in this region amounts to about one-third the cost of mining in the coal districts of Great Britain.

The present price of Allegheny coal at any point from which it can be transported, either in this State, Maryland or West Virginia, is $1 per ton on cars at the mines, while those in the principal coal districts of Great Britain cost from 10/ to 12/, English money.

The great Southern iron belt also forms into line in Virginia, and then courses into a southeastern direction from Virginia to Alabama, equal in magnitude to the Allegheny coal field, and both running parallel for hundreds of miles.

The coast of mining the iron ore in this valuable range is less than the cost of mining the Allegheney coal, which runs in close proximity, as already stated, and the numerous mines opened to supply the charcoal furnaces extending along this great range of ore will plainly show these facts, as well as how the hundreds of billions of tons yet in store, can be mined with the same amount of labor.

The cost of the ores in the iron districts of England is quoted at from 18/ to 20/ per ton, which is from four to five times as much as the cost of ore from the great iron belt of this country.

The difference in price of coal and iron ores between these two great mineral regions plainly indicates that the great advantage, with our cheap mineral, over that of England amounts to more than the actual cost of converting these materials into bar or railroad iron. The difference in the cost of coal and ore between this country and Great Britain is undisputed, and the American people can ask for no better evidence than an examination of the statements on record in the several mining districts of either country will reveal.

The ablest American mining engineers who have from time to time made explorations along this coal and iron belt, testify to the wonderful mineral wealth and resources of that region, as being beyond the scope of human vision to contemplate.

The results associated with these millions, the industrial facilities, the wealth and power and influence at home and abroad which they must inevitably confer upon the future inhabitants of this country are acknowledged, and of these facts neither the government nor the iron masters can plead ignorance. The reason why this great mineral range has been so long neglected and uncared for, and the lands valued by their owners as little better than waste land, is because of the want of transportation facilities.

This vast range of minerals runs its course within 250 miles of the city of Reading, placing within our grasp the means to establish additional industries, and keep permanently employed the hundreds and thousands who are now out of work, and have no means for the support of their families. It is hoped that the people of this vicinity, and the State at large, will hereafter more carefully inquire into this locality, where we can defy competition from all parts of the world; and encourage the establishment of the many industries which must of necessity grow up around us, and some day form a continuous line of manufactories from Reading to Philadelphia.

Iron and the Smith.

Generally the discovery of iron is understood to have been long posterior to that of bronze. While it is as yet impossible to affix exact chronological dates to the first introduction of any of the elder metals into the service of man, it is ascertained, beyond reasonable doubt, that the employment of gold was earlier than that of bronze, and that the manufacture of bronze preceded that of iron. Silver is interposed (perhaps in the first instance by the poets) between gold and bronze; but of the justice of that attribution it is difficult to form an opinion. It is, however, easy to understand that metal which is found in a virgin state, as in the case of gold, would more readily yield its resources to human industry than metal found only in a state of ore. But even here we must speak with some reserve, as we are aware of the actual existence, although rare, of tolerably pure virgin iron, in the form of meteoric deposit, while we are unable to cite an instance of virgin bronze.

But while we cannot reduce the date of the earliest work of the smith to historic time, there is no reason to doubt the sequence of the various metals, in so far as they were known to or used by man. It is rather the philosophical than the historical or chronological date which we thus attain; but that is ample for our present need. At a distance of time which is uncertain, but which is to be measured by millenniums, rather than by centuries, and which may differ widely in different regions of the earth, the earliest inhabitants of our planet who have left any indications of their affinity to ourselves carved rude implements of stone, horn and bone. Almost as early as any marks of industry of this nature are the relics of a contemporary art. Man began to ornament, so far as we can tell, as soon as he began to work. With the lapse of time, the rude flakes of flint, or the hammers made of some hard stone, assumed greater elegance of form and delicacy of finish. During the period which has been termed the neolithic age of civilization, bronze first made its appearance. Late in the bronze period, and, comparatively speaking, late in the historic period, we are accustomed to place the discovery of iron, to locate it in Crete, and to attribute it to the Idæan Dactyli.

Pliny, in his Natural History, says: "Of all metals the veins of iron are most abundant." The metal is mentioned, under its Greek name *sideron*, by Thucydides, Euripides, and Æschylus, as well as by Xenophon. The earliest note of the word occurs in the Book of Genesis (iv. 22) where Tubal Cain is mentioned as the instructor of every artificer in brass (or rather bronze) and iron. The word here used, which is also translated iron where it occurs in the Book of Ezekiel, is *barzal*, which is derived from an Aramaic root meaning to pierce. Another word, *paldah*, cognate forms of which also occur in Arabic and in Syriac, is used by the prophet Nahum (ii. 4), and is explained by Gesenius to mean steel. It comes from a root meaning to cut. The Hebrew *barzal* appears as *barzal* in the Book of Daniel. It is difficult to identify either of these words with the Greek form, although that is originally allied to both the Latin *ferrum* and the English iron. We are, however, relieved from any doubt as to whether iron was known in the time of Moses, 3400 years ago, by the discovery of a wedge or plate of iron embedded in the masonry of the Great Pyramid itself.

This instructive relic, like the half-fused magnifying lens found at Pompeii, throws much light on questions of early workmanship. It has been a great puzzle to those who attributed the first use of iron to a date not much more than 2900 years back, how such sharp and well-defined hieroglyphics could have been cut, by the ancient Egyptians, on porphyry, granite, and the hardest stone. It may, indeed, be the case that, when bronze was the ordinary material for tools, the copper smith had some secret as to the production of a very hard temper, now lost. But this is at best only a guess. From the certain proof that iron had been produced and wrought in the age of King Cheops, 5400 years ago, we can better understand how the innumerable and exquisitely sunk symbols and figures were wrought on tombs, temples, sarcophagi. And more than that, from the great similarity in the mode of treatment, that prevailed from the time of the Ptolemies back to the very earliest known Egyptian inscriptions, we have something closely approaching a proof of the use of iron as far back as the fifth Egyptian dynasty, if not in the time of Menes himself; that is to say, 6300 years ago.

From that earliest use—date it when we may—the art of the founder and of the smith has advanced, with enormous strides, to our own times. If we distinguish the manufacture from the fabrication of iron—that is to say, if we draw a line between metallurgy and smith's work—there may be some reason for the opinion that, while the former is still in a state of rapid progress, the latter has passed its zenith. We are not about absolutely to insist on this point. Of the truth of the former position there can be no doubt. We must explain what leads us to entertain a suspicion as to the latter.

The great mechanical characteristic of the present age is the substitution of steam-power for manual labor. The signal for this enormous change—a change which, it is not too much to say, is tending entirely to revolutionize the relations of mankind to the world on which they dwell—was given by the genius of Watt. Our own eyes have witnessed, our own hands have labored at, step after step, the mighty transformation. We can remember when, on one occasion, on the completion of a locomotive engine by Mr. Stephenson, steam was got up, and the machine, though well up to its duty on the rails, was unable to propel itself over the floor of the factory. The inference thence drawn, and not unnaturally, by the first engineers of the day was, that it was pure loss of time to turn attention to the propulsion of steam engines on the common roads. This was hardly a third of a century ago, and what do we now see? At almost every county bridge, in some districts, at least of England, a notice is affixed that the arch will not bear the weight of a traction engine. Who has not seen these uncouth giants tracking their heavy and resistless course over the country, training behind them wagons and quaintly shaped machines for scarifying and torturing the face of the earth, with apparent indifference to their number or their weight. Two very simple improvements have overcome the impossibility imagined by Mr. Stephenson. One of these is the old mechanical method of reduction of speed by cog work. The piston travels at the speed which best suits the evaporative power of the boiler. The driving wheel revolves at the slow pace fitted for progress over the road. This slow, irresistible progress is rendered possible by the great breadth of the wheels, and by the oblique grooving recently introduced on their circumference.

What has been done in the locomotive, from the express engines of Mr. Brunel, able to take a train over the low gradients of the Great Western Railway at the rate of 70 miles an hour, to the slow but mighty traction engines, and the self-moving agricultural engines of to-day, is going on in every department of the work of the smith and the fitter. Machines, not indeed endowed with intelligence, but unerring in their discharge of duty, and themselves the offspring of the noblest mechanical intelligence, now deal with iron almost as a swallow deals with mud. They forge, roll, hammer, plane, punch and drill. They turn out hammered or pressed iron, untouched by the hammer of the smith, in every form; from the gun that weighs 35 tons to the hairspring of a watch. Hardly any tool can be named which is not produced, or likely to be produced, more readily, accurately and cheaply, by machinery than by hand. But this great facility does not tend to improve the handiwork of the smith.

If we contrast this state of things with that which prevailed three hundred years ago, we shall see that against all our gain—and we are among the last to under value it—we have to set off a certain loss. The highest skill displayed in the work of the smith was found in the craft of the armorer. To that craft a fatal blow was given by the tilting lance of De Montgomeri, when, in curious coincidence with the prophecy of Nostradamus, it entered the helmet of Henry II. of France. Three influences thus combined, led, within a couple of generations, to the disuse of armor, and thus to the extinction of the most skillful, workmanlike, and artistic employment of the smith. Those were the death of the King of France, which was too serious a matter to result without producing a powerful effect upon the amusement of the tourney; the increasing excellence of gunpowder and guns, and the reign of a female Sovereign in England. When we look at the armor of the time; when we note that the tilting armor, which, by the introduction of the pauldron and other devices had lost its symmetry, attained the weight of a 100 pounds avoirdupois; when we observe the exquisite delicacy with which the Milanese armorers wrought the mail that was like steel gossamer, or the scale or folding plate that fitted the limbs like the carapace of a lobster—we may well be of opinion that few smiths of the 19th century can hold a candle to their ancestors of the 16th.

Connected with the extreme care that was given to the fabrication of defensive armor, was that bestowed upon offensive weapons. The fame of two descriptions of sword blades has been established since the Middle Ages, and even since the crusades. One of these is the Toledo rapier, a long, straight sword, the undoubted excellence of which must, we believe, be chiefly attributed to the original quality of the ore employed by the makers. The other was the Damascus sabre, or scimitar, a curved blade, of such exquisite temper that, when handled by a master of that description of fence, it could cut in two with equal ease a floating scarf of gauze or silk, or the neck of a horse, or of his rider. The excellence of the Damascus blades we are disposed to attribute rather to the skill and patience of the smith, or at least of the maker of the iron, than to the original quality of the metal. For it is to the repeated working up of scraps, and rusty scraps, of iron that the beautiful mottling of the Damascus blades is due. It seems to us not improbable that these numerous welds, none of which are so perfect as to have been obliterated under the hammer, act like the teeth of a very fine saw, and thus cut with a keenness unattainable by a more homogeneous and smoother edge. It should, however, be borne in mind that the difference between the iron produced from different ores is, in our present stage of metallurgic practice, extreme. There is an iron made in our North Midland counties which is so hard that it is almost impossible to break up old castings made of it. On the other hand, when the French *usines* began to make rails, some 21 years ago, an English fitter, whith a cold chisel and a hammer, could cut one of them in two in less than a quarter of an hour.

The earliest use of iron as an offensive weapon was probably in the form of arrow-head. Bright points of this nature, which are said to be a thousand years old, are preserved with great reverence in the museums of that wonderful country, Japan. It is far from improbable that meteoric iron was, in the first instance, thus employed. At all events, the purity of the metal, and the care and patience with which it was wrought, were extreme. Among the antiquities of India is to be found an iron column so large and so perfect that we could not produce the like at the present time without the aid of steam machinery.

After the demand for the highest class of smith's work—that is to say, armor and offensive weapons intended to pierce armor—had ceased, the decorative taste of Italy, of Germany, and even of our own country, was gratified by the production of much admirable ornamental iron work. Park and garden gates tasked the skill and displayed the taste of the smith. The uniformity of a line of iron palisades was agreeably broken by flourishes and scrolls, each of which was stamped by a certain individuality. In the South Kensington Museum are to be found fine specimens of English and Roman work of this nature. Much iron work is now in rapid decay throughout the country, which it would be a good deed to rescue from destruction. We saw a beautiful specimen of this kind, not so very long ago, on a *perron* in the High street of Rochester. In other places the intelligent care of the proprietors, and the renewal of painting and of gilding, has kept the iron work of the seventeenth century as fresh as that of to-day. Such are the goodly scrolls and flourishes that adorn the Town Hall of Guilford, and decorate its great projecting clock, erected in 1681.

To the demand for this bold, permanent, and manly kind of ornamentation a fatal blow was given by the increasing skill of the molder and of the caster. The heavy railings recently removed from the west end of St. Paul's church yard were among the first, if not the very first, in which cast was substituted for wrought iron. It is said that the enterprising contractor made much money by his ingenuity in this respect. Economy soon prescribed laws of retrenchment as to ornamental iron work; and here again, as in the case of the invention of gunpowder, the increased use of iron was made at the expense of the occupation of the smith.

The points to which attention are now chiefly directed, with regard to iron, apart from the mischievous result of ill-regulated competition in producing, for the smallest price, the largest possible quantity of inferior metal, are its reduction from the ore without the intervention of manual labor; the chemical purification of the metal, and the removal of those minute proportions of sulphur and of phosphorus which destroy its tenacity; and the production of steel or carbonized iron by simple procedures. There is, perhaps, no instance in which mechanical invention is removing a greater curse from labor than in the case of puddling iron. Those who have watched the process, or who have studied the beautiful representations of furnace work given by the graceful pencil of Moritz Retsch, in his illustration to Schiller's "Song of the Bell," are aware of the exhausting nature of the labor undergone by the puddler. It is, we think, the hardest labor now performed by man. As involving a certain amount of experienced judgment, it is of a higher grade than that of the brick molder; but the suffering it involves from heat is far keener than that inflicted, in the latter case, by cold and damp. For dirt they are about on a par. It is always the case that those occupations which, from their danger or their hardship, command extra wages, have a demoralizing effect on the workman. At the same time, just in proportion to the danger, especially if there be any risk of life, is it found that any attempt at introducing an easier process is steadily and fiercely opposed by those who think that they have acquired a vested interest in their craft. The manufacturers of iron are, to a great extent, at the mercy of the puddlers; and the chief gainers by the high wages which this arduous work rightfully earns are, no doubt, the brewers. It is, therefore, in the interests of morality, of public health, and of the elevation of the workman in the social scale, no less than in that of the manufacturer and of the purchaser of iron, a source of great satisfaction to find that the experiments recently made on the mechanical puddling of iron have been so satisfactory, that it seems now to be only a question of time as to the entire disuse of the hand puddling process.

Anything which tends to make manufactured iron at once cheaper and better is a boon to the smith. It is the bad quality of common iron, rather than any inherent defect in the metal, which renders the architect often averse to the employment of smith's work, when nothing else is so truly appropriate. We must conclude that what renders one sample of iron less tenacious than another is some chemical impurity in the metal, which it is within the power of perfectly instructed metallurgical skill to remove. These admixtures are often extremely small, if measured by any test but that of the depriciation of the quality of the iron. Measured by that test, their presence assumes extreme importance. Mr. Kircaldy, by his numerous experiments, has added no small amount of positive knowledge to that which we possessed before on the actual resistance of various makes of iron, both to tension and to compression. In his "experiments on wrought iron and steel," we find the breaking weights of iron bars to range from 160,520 pounds per square inch of fractured area in the Swedish R. F. charcoal iron, to 68,883 pounds per square inch of fractured area in Russian C. C. H. D. iron, a difference not far short of three to one. In iron plates, looking at domestic production only, the breaking weight per square inch of fractured area ranges from 92,468 pounds in Yorkshire plate to 43,460 in common Scotch ship plate. This is more than two to one in favor of the Yorkshire iron. It is also a very suggestive comparison with reference to naval security.

An uncomfortable suspicion prevades the public mind—and even professional men are not altogether free from its influence—that, under some unexplained circumstances, the texture, or molecular arrangement of iron used in buildings or in machinery, undergoes a mysterious change. Fractures of axles or of tires in railway collisions are the phenomena which have been chiefly cited as requiring this very alarming explanation. Many writers have ridiculed the idea; but ridicule is an unsatisfactory substitute for scientific analysis. It has, however, been pointed out that "the two different appearances, respectively known by the terms 'a fibrous fracture' and a 'crystalline fracture,' are produced by the iron breaking gradually in the one case, and suddenly in the other. Hence, when the appearance presented was fibrous, it only proved that the piece had been torn asunder; when it was crystalline, that it had snapped." This view, which is not a matter of theory, but the outcome of experiment, fully explains all the phenomena of fracture which have led to the idea of some unexplained structural change. It is of the first importance, to the architect as well as to the engineer, that the facts should be known. An unexplained, mysterious danger, such as would be that of such a molecular change, if it could possibly occur without ascertainable cause, is more to be dreaded than any of those casualties which it is within the power of competent science, backed by competent care, almost absolutely to preclude.

By immersing specimens of iron in dilute hydrochloric or muriatic acid, the foreign impurities are removed, and the texture of the metallic portion is exposed to examination. Long immersion in water—or at least in some water—has the same effect, as we have witnessed in the bolts of a sunken vessel that had been for some fifty years exposed to the alternate action of fresh and salt water in the river Seine. Thus treated, puddled iron, rolled or wrought iron in its lowest state, as in Scotch and Welsh puddled bars, presents a woolly appearance. In iron of a superior quality the appearance presented is that of very fine threads or hairs, lying closely together. This is remarkable in Farnley or Bowling iron, as also in Russian bar. Swedish tilted bars present, even to the naked eye, a beautiful silvery variegated appearance. Of the beautiful Styrian iron, which is so highly prized in Italy, and which was probably employed by the famous armorers of Milan, we regret that we have found no analysis or definite scientific description. It is most evident—to use a mode of expression that has recently come into favor—that there is iron and iron, no less than that there are smiths, and that there have been smiths.—*London Builder*.

Manual Labor.

The San Francisco *Commercial Herald* has something to say about manual labor, which ought to be widely read. We commend the following to the consideration of young men:

One of the demoralizing effects of a long and bloody civil war is to be found in the aversion to engage in pursuits which require manual labor. The rapidity with which collossal fortunes were made during and since our late terrific struggle, by men void of culture and refinement, but full of dash and venture, was so strikingly in contrast with the tedious and comparatively unsatisfactory progress of those who relied upon manual labor to achieve independence, that the latter method is come to be regarded as something to be dispised and shunned. Tom Jones, the former hod-carrier, but now Thomas Jones, Esq., the millionaire, affects to regard with contempt any and all pursuits which require the exertion of corporeal effort. Nothing short of the bar, the pulpit, or the counting-house is deemed suitable for his child; and Bill Smith, the carpenter, who knew Tom Jones in his days of squalor and destitution, determines that his son shall have as much opportunity to become distinguished, and the boy is instilled with the belief that nothing confers honor in this world but the possession of money. He hears it at home; sees it in the streets; learns it from his intercourse with others brought up in the same school, and even comes to realize its dominant power in churches whose congregation vie with each other to erect the most costly and sumptuous tabernacles. No thought is given to the fact that the professions in this country are altogether overstocked, and that not more than five in every hundred achieve even fair success. The splendid career of such men as Watt, Stephenson, Franklin, Morse, Burritt, Ericsson, and a hundred more of the same character, are not thought worthy of imitation now-a-days by the average Americans. He would be deemed a cruel and unnatural father—as a rule—who might presume to place his son behind a plow; to shove a foreplane, or ask him to smite the glowing iron with the massive sledge. The metal of which young hopeful is composed possesses qualities far too fine for such rough avocations. Beside, he is too delicate; he sometimes has a headache, or perhaps a slight cough. To indenture him as an apprentice is, to the American mind, too much like abandoning him to peonage; and to give him a trade, or place him in any position requiring manual labor, would be to lower him in "society." It never occurs to such parents, who seem to have their veins full of the "aspiring blood of Lancaster," that they are employing the best possible method of either making vagabonds and discontented idlers of their children, or hurrying them out of this world through the doors of a lawyer's, minister's, or merchant's office. Brought up under such training, our young men seem ambitious only to get a living out of their wits, even at the expense of manliness, independence, self respect, and the fearful wear and tear of conscience. What is the result? Vast numbers of the best farms in the United States are now in possession of Germans, Irish, Swedes, Dutch, and other foreign born and bred farmers. Our workshops are filled with imported mechanics, who have brought with them certain stipulations by which our youth are ruled out from learning trades. Our shipping is largely manned by foreign sailors, and all our manufacturing establishments are little better than hives for the industrious bees of other countries. Such a condition of society is replete with evil. It can, if continued, result only in national degredation, and the destruction of that independent element which is our best safeguard.

The Shelton Company, of Birmingham, Conn., whose advertisement will be found in another column, manufacturers of tacks and small nails, &c., is one of the oldest and most respectable concerns of that important and rapidly expanding locality, having been established nearly forty years ago, and still being managed by its venerable president, Mr. E. N. Shelton, one of the richest land holders of Derby and suburbs. His son, partner in the firm, has had a most important invention of his patented quite recently—an improved paper box for tacks, &c.—the manufacture of which will be conducted by a newly established house, in which the junior Mr. Shelton is a partner, under the name and style of Cornell & Shelton, also of Birmingham.

London Metal Market.

(From The Mining Journal.)

	£.	s.	d.	£.	s.	d.
Copper—₱ ton.						
Best selected	96	0	0	97	0	0
Tough Cake & Tile	93	0	0	96	0	0
Sheathing and Sheets	98	0	0		—	
Bolts	101	0	0	102	0	0
Bottoms	100	0	0	102	0	0
Old	87	0	0	90	0	0
Australian, Wallaroo	95	10	0		—	
" other brands	93	10	0	94	0	0
Chili bars, G. O. B	83	10	0	84	0	0
Wire	₱ lb.	0	1	1	—	
Tubes	"	0	1	2	0	1 3
Brass—₱ lb.						
Sheets		0	0	9½	0	0 0
Wire		0	0	9½	0	0 10
Tubes		0	0	12	0	0 12½
Yellow Metal Sheathing		0	0	8½	0	0 9
Sheets		0	0	8½	0	0 8¾
Spelter—₱ ton.						
Foreign on the spot		23	15	0	24	0 0
" to arrive		23	15	0	23	17 6
Zinc—₱ ton.						
In Sheets		30	10	0	31	0 0
Quicksilver—₱ bottle		24	0	0		
Tin—₱ ton.						
English Blocks		98	0	0	99	0 0
Ditto Bars (in brls.)		99	0	0	100	0 0
Ditto Refined		101	0	0	102	0 0
Banca		100	0	0	101	0 0
Straits		94	0	0		—
Australian		92	0	0	93	0 0
Tin Plates—† ₱ box.						
IC Charcoal	1 qual.	1	18	0		
IX "	1 qual.	2	4	0		
IC "	2 qual.	1	16	0	1	17 0
IX "	2 qual.	2	2	0	2	3 0
IC Coke		1	7	6	1	8 6
IX "		1	13	6	1	14 6
Canada Plates	₱ ton.	18	10	0	19	0 0
" at works		18	0	0	18	10 0
Iron—₱ ton.						
Bars Welsh, in London		8	17	6	9	0 0
" to arrive		8	17	6	9	0 0
Nail Rods		9	10	0		—
Nail Rods, Staff'd in L'ndon		10	15	0		—
Bars		11	0	0	12	0 0
Hoops		12	0	0		—
Bars at Works		10	0	0	11	0 0
Hoops ditto		11	0	0	11	15 0
Sheets, single, and plates		12	10	0	14	15 0
Pig, No. 1, in Wales		5	0	0	6	10 0
Refined metal ditto		7	0	0	8	0 0
Bars, common ditto		8	0	0	8	5 0
Do, merchant, Tyne or Tees		8	10	0		—
Ditto, Railway, in Wales		7	0	0	7	5 0
Ditto, Swedish, in London		16	0	0	17	0 0
To arrive		17	5	0		—
Pig, No. 1, in Clyde		4	7	0	5	12 6
Ditto, f.o.b., Tyne or Tees		4	0	0	4	5 0
Ditto, Nos. 3, 4, f.o.b		3	10	0	4	0 0
Railway Chairs		5	0	0	5	5 0
" Spikes		12	10	0	14	0 0
Indian Ch'coal Pigs in L'don		8	0	0	10	0 0

Steel—₱ ton.						
Swedish, in kegs (rolled)				—		—
Ditto (hammered)	19	0	0	20	0	0
Ditto, in faggots	20	10	0			
English, spring	19	0	0	24	0	0
Lead—₱ ton						
English Pig, common	24	0	0			
Ditto, LB	24	0	0			
Ditto, WB	24	10	0			
Ditto, Sheet	25	10	0			
Ditto, Red Lead	25	0	0			
Ditto, White	30	0	0	32	0	0
Ditto, Patent Shot	26	10	0	26	15	0
Spanish	23	5	0	25	10	0

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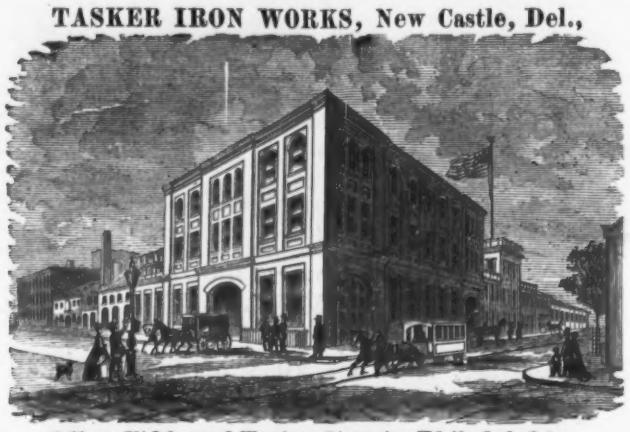

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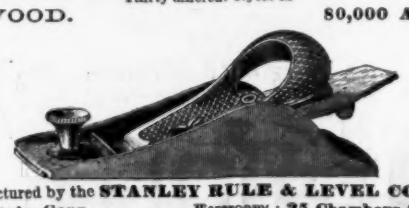

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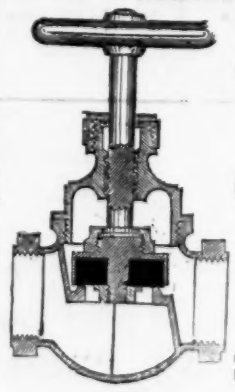

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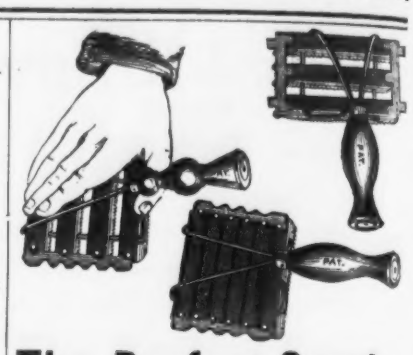

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WHEATCROFT'S SELF-ADJUSTING

Pipe Wrench,

AND

Scripture's Funnel Top MACHINE OILERS.

Dealers in

STEAM AND GAS FITTERS TOOLS.

DRILLS,

Pipe Tongs,
Pipe Cutters,
Pipe Threaders,
Flue Brushes.

M. D. CONVERSE & CO.,

68 Park Place, N. Y.

Chapman Valve Mfg. Co.,

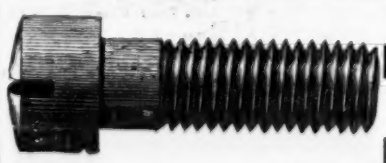
STEAM VALVES,

Iron and Composition, of all sizes.

WATER and GAS Gates, 3 to 48 inches

HYDRANTS.

Office and Warehouse, 75 & 77 Kilby St., Boston, Mass



TURNED MACHINE SCREWS,

One-sixteenth to five-eighths diameter.
Heads and points to sample.
IRON, STEEL and BRASS.

Lyon & Fellows Mfg. Co.,

Cor. 1st and North 3d Streets, Williamsburgh, N. Y.

THE EAGLE SQUARE MFG. CO.

The Oldest Established Square Company in the United States.

STEEL & IRON SQUARES,

STEEL AND IRON RULES.

LANE, GALE & CO.,

SOLE AGENTS,

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RICHARD DUDGEON,

No. 24 Columbia Street, New York,

MAKER AND PATENTEE OF

Hydraulic Jacks and Punches,

ROLLER TUBE EXPANDERS

And Direct-Acting Steam Hammers.

Communications by letter will receive prompt attention.

JACKS for Pressing on Car Wheels or CRANK PINS made to order.

Braces, Curry Combs, Ash Shovels, Ferrules, Chisel Rings, Garden Trowels, Pat. Ox Bow Pins, &c.

Manufactured by

G. W. & H. S. BARTHOLOMEW, Bristol, Conn.

HOBART'S TACKS.

MANUFACTURED BY

DUNBAR, HOBART & WHIDDEN,

Established 1810.

Office and Salesroom, 116 Chambers Street, New York Factory, South Abington, Mass.

MANUFACTURERS OF

American, Swedes and Copper Tacks,

Tinned, Leathered and Large Head Carpet Tacks, Finishing Nails, Black and Tinned Trunk Nails, Miners', Gimp, Lace and Brush Tacks, Hungarian, Chair, Cigar Box and Barrel Nails, Glaziers' Points,

IRON, STEEL, COPPER, ZINC AND BRASS SHOE NAILS,

Heel and Toe Plates, Steel Shanks, and Fancy Head Nails, Silver or Japanned Lining and Saddle Nails.

A full assortment always on hand at salesrooms, for immediate delivery if required. Odd and irregular sizes made to order or cut from sample at short notice. Send for Price List.

RIEHLE BROTHERS,

Ninth Street, near Coates, Philadelphia.

New York Store. 93 Liberty Street.

Pittsburgh Store, 255 Liberty Street

SCALES

PHILAD^{A} SCALE WORKS

ESTABLISHED 1848

"Patented" Furnace Charging Scale.

Double Beam R. R. Track Scale, Compound Parallel Crane Beams, &c. Patented First Power Lever Wagon Scales. Testing Machines any capacity.

STEAM GOVERNOR

WARRANTED BEST IN USE.

ADDRESS HUNTOON GOVERNOR CO. LAWRENCE MASS

Manufacturer of

Rules, Planes, Iron Planes, Grooving Plows, Gauges, Plumbs and Levels, Hand Screws, Bench Screws, Handles, Door Stops, Try Squares, Sliding T Bevels, Turning Saw Frames and Saws, Scholl's Patent Gauge, Butler's Patent Gauge, Boring Machines, &c., &c.

Illustrated Catalogues of 1874 furnished on application. Address,

H. CHAPIN'S SON Pine Meadow Conn.

THE SPRAGUE CAN OPENER

Geo. D. Lord, PRES.
Geo. Darling, V.P.

W. R. Seward, TREAS.
A. M. Sprague SEC'Y.

FOR OPENING TIN PACKAGES OF FISH, OYSTERS, FRUIT, & VEGETABLES.

IT SHEARS CLEAN, LEAVING NO RAGGED EDGES.
EASILY OPERATED, ALWAYS IN ORDER.

MANUFACTURED BY THE

Sprague Can Opener Co.,

ROCHESTER, N. Y.

Depot for New York City Delivery, with UNION HARDWARE CO., 120 Chambers, and 50 Warren Street.

New York Wholesale Prices, February 10, 1875.

HARDWARE.

Anvils.
Solid Cast Steel.... ₩ lb 14c
Wright's.... ₩ lb gold 11½c; over 250 lbs 12c, gold
Armitage's Mouse Hole.... gold 11c
Wilkinson's.... ₩ lb gold 11c
Eagle Anvils.... ₩ lb 8c
Apple Parers.
Domestic / Turn Table / Lightning / Hudson's / Reading / Union } $7 @ 8 ₩ doz
Skeleton Paring, Coring and Slicing....
Turn Table, old style.... $6·75 dis 10%
Bay State, Paring, Coring and Slicing.... $15 00 dis 10%
Climax Slicer.... 8 00
Augers and Bits.
Douglass / Ives / Beecher (French, Swift & Co) / Griswold } 1st quality.... dis 40%; 2d quality.... dis 40&5%
Noble.... dis 40&10%
Challenge.... dis 22½ @ 25%
Snell Mfg. Co.... dis 10%
Russell Jennings.... dis 30%
Lewis' Single Twist Bits.... dis 25%
Andrews' Bits.... dis 10&10%
Cook's Bits.... dis 50%
" Augers.... $18 @ $46—dis 15%
Expansive Bits, Clark's....
" " Ives'.... $20 @ $30—dis 20&10%
" " Blake's.... $20—dis 25&10&10%
Hollow Augers, Douglass'.... dis 25&10%
" " Ives'.... dis 25&10%
" " French, Swift & Co.... dis 25&10%
" " Bonney's Adjustable. ₩ doz $48—dis 25%
" " Stearns' " ₩ doz $48—dis 25%
" " Ives' Expansive.... each $4·50—dis 40%
" " Cushman's Expansive.... dis 20%
Gimlet Bits—Screw, $7·50; no screw, $9.... dis 20&10%
Double Cut Gimlet Bits, Shepardson's.... dis 20%
" " Hartwell's.... dis 50%
" " Douglass'.... dis 20&10%
" " Ives'.... dis 25%
" " Ladd's.... dis 50&10%
Griswold's Patent.... dis 20%
Morse's Bit Stock Drills.... dis 20%
L'Hommedieu's Ship Augers.... dis 15%
Watrous Ship Augers.... dis 15%
Vaughan's Post Hole— 6 in. $23 60; 9 in. $25 per doz.... dis 20%
Awls and Tools.
Aiken's.... dis 25%
Nos. 42 and 43.... dis 35&10%
Clark's.... dis 30&10%
Stanley's Excelsior.... $18 50—dis 20&10%
Axes.
Brook's.... per doz $12 00 @ 14 00 net
Blood's.... per doz $12 00 @ 13 00
Hunt's.... ₩ doz $12 50 @ 14 00
Collins'.... ₩ doz 11 00 @ 15 50 net @ dis 5%
H. Clark's (J. C. W. & Co.) Bronzed.... ₩ doz $10 00 net
Hurd's.... ₩ doz 11 50 @ 12 50
Simmons'.... ₩ doz 11 00 @ 11 50
Morris'.... ₩ doz 12 50 @ 13 50
Red Jacket.... ₩ doz 12 00 @ 12 50
Mann's.... ₩ doz 11 50 @ 13 00
Double Bitted.... ₩ doz 21 50 @ 22 00
Underhill's.... ₩ doz 12 00 @ 13 00
" Crown.... ₩ doz 12 50 @ 13 50
John Leverett's.... ₩ doz 12 50 @ 15 50
Ten Eyck.... ₩ doz $11 00 @ 12 50 net
Balances..... dis 40&10%
Bands.
Plated.... new list dis 50&5%
Iron Rim.... new list dis 25&5%
Brass (Plated list).... new list dis 50, 10&5%
Oroide.... new list dis 50&5%
Bells.
Hand, Light Brass.... dis 65&5&10%
Extra Heavy.... dis 40&10%
White Metal.... dis 50&10%
Silver Chime.... dis 15&10%
Swiss.... dis 25%
Globe.... dis 15&10%
Gong, Abbe's.... dis 15&10%
" Yankee.... dis 30&10%
" Barton's.... dis 33⅓%
Crank, Taylor's.... dis 25%
" Brook's.... dis 50%
" Cone's.... dis 10%
" Connel's.... dis 50&10%
Lever, Sargent's.... dis 50&10&10%
" Taylor's.... dis 25%
" Hart, Bliven & Mead Mfg. Co.... dis 50&10%
Pull, " " " ".... dis 50&10%
" Brook's.... dis 50%
" Western.... dis 25%
Cow—Common Wrought.... dis 20&10%
Western.... dis 20&10%
" Sargent's.... dis 50&10&10%
Kentucky "Star".... dis 20&10%
" Sargent's.... dis 50&10&10%
Dodge's Genuine Kentucky.... dis 35%
Yew's Genuine.... dis 30%
Texas.... dis 35%
Call.... dis 15%
Bellows.
Blacksmiths'.... dis 20%
Moulders'.... dis 15%
Hand Bellows.... dis 10%
Blind Adjusters.—Domestic.... ₩ doz $2—dis 20%
Blind Fasteners.
Mackrell's.... dis 30%
Van Sand's, No. 2000, $14·00; No. 3705, $10·75.... net
Washburn's Patent.... ₩ gross 14 00
Merriman's.... new list net
Blind Staples.
Boardman's Patent, ½ in. and larger.... ₩ lb 37 c
" ⅜ in.... " 42 c
Blocks.
Tackle, Rope and Iron Strapped, Providence Tool Co.'s list.... dis 30%
Burr's.... dis 10%
Stanley Rule and Level Co.... dis 25&10%
Bolts.
Cast Iron Barrel, Shutter, &c.... dis 60&10%
Cast Iron Chain.... dis 60&10&10%
Wrought Iron Barrel.... dis 50, 10&10%
" " Square.... dis 50, 10&10%
" " Shutter.... dis 60&10%
Wrought Iron Flush, Stanley's.... dis 15&10%
" " " Sargent's.... dis 50&10&10%
Carriage and Tire, Common.... dis 75&10%
" " " Norway Iron.... dis 50&10%
Star, Philadelphia.... dis 50 @ 50&10%
Eagle Philadelphia.... dis 50 @ 50&10%
Carriage and Tire, R. B. & W.... old list dis 60%
Plow, R. B. & W.... dis 30%
Stove, R. B. & W.... dis 20%
" Shelton Co. Shaved Heads.... dis 20%
Union Nut Co., old list.... dis 60%
" " Stove.... dis 15%
" " Machine.... dis 45&10%
Borax..... 15c. ₩ lb
Boring Machines.
Kellogg's.... dis 15%
Snell Mfg. Co., Rice's Patent.... dis 20%
" " Regular.... dis 20%
Douglas Mfg. Co.... dis 20&10%
Morticing Machines each.... $18 00
Bow Pins.
Union Nut Co.... new list dis 50&10&5%
Hotchkiss'.... dis 50 @ 55%
Humason, Beckley & Co.'s.... dis 50&10&5%
Sargent & Co.'s.... dis 50&10&10%
Braces.
Barber's Patent.... dis 40&5%
Q. S. Backus.... dis 40&10%
Wilson Mfg. Co.... dis 10%
Spofford's Patent.... dis 50&10%
Noble's Patent.... dis 40&5%
Ives' Novelty.... dis 40&5%
" Hamden.... dis 45&10%
Common Ball.... dis 15&10%
Brackets.—Shelf.... dis 60&10 @ 65&10%
Bright Wire Goods.... dis 65&10&10%
Bull Rings.—Union Nut Co., new list, dis 50&10&5%
Sargent's.... dis 60&10%
Bung Hole Borers.
Common and Ring.... dis 25%
Ives' Tap Borers.... dis 10&10 @ 25%
Enterprise Mfg. Co.... dis 20%
Butchers' Cleavers.
Humason & Beckley Mfg. Co.... dis 20&10%
Bradley's.... dis 25%
Beatty's.... dis 20%
2 3 4 5 6 7 8 9
$19·00 $21·50 $24·00 $27·00 $30·00 $33·50 $36·50 $40·00
Hart Mfg. Co.... dis 45&10%
0 1 2 3 4 5 6
$25·25 $29·75 $34·25 $38·75 $43·25 $48·50 $54·00
Butts.
Wrought Brass.... dis 30%
Cast Brass.... dis 20%
Cast Fast Joint, Narrow.... dis 40 @ 50%
" " Broad.... dis 50&10%
Cast Loose Joint, Narrow.... dis 55&10%
" " Broad.... dis 60&10%
" " Mayer.... dis 50%
" " Parliament.... dis 50%
Drilled Wire Jointed—
Fast Joint, Narrow, High List.... dis 50&10%
" Broad.... dis 50&10%
Loose Joint, Narrow and Broad.... dis 60&10%
Loose Pin.... dis 55 @ 60%
Wrought Fast Joint, Narrow.... dis 30&10%
Wrought Broad.... dis 35&10%
" Loose Joint.... dis 35&10%
Wrought Table and Back Flaps.... dis 30&10%
Lull & Porter's Blind Butts.... dis 10%
Palmer Blind Butts.... dis 30&10%
Nicholson Blind Butts.... dis 40&10%
Parker's Blind Butts.... dis 55&10%
Huffer's Blind Butts.... dis 33⅓&10%
Clark's Surface Blind Hinges, Nos. 1, 3 and 5.. dis 55&10%
" " " No. 40 and 50.... dis 50&5%
" " " No. 20.... dis 60&10%
Mortise " " 2, 4, 4½, 6, 8, 10.... dis 33⅓%
Seymour's.... dis 55&10%
Shepard's.... dis 50&5%
Garretson's.... No. 1, dis 50&10%; Nos. 2 and 7 dis 50&5%
The American Spiral Spring Butt Co.... dis 20%
Standard.... dis 50&5%
Caps—Percussion, per 1000.
G. D.... 37 @ 40c
Ely's E. B.... 1-4s, 58c.; 1-10s, 65c., gold
" Double Waterproof, 1-4s, $1·45; 1-10s, $1·52½c.. gold
Colt's.... 1-10s 80c gold

Carpet Sweepers.
Union.... each $2 75 net
Welcome.... each 2 75 net
Cartridges.—Metallic.... dis 50&10%
Cards.—Horse and Curry.... dis 30&10%
Cotton.... dis 10&10%
Wool.... dis 15&10%
Carpet Stretchers.
P. S. & W.... per doz $2 00; dis 40&5%
Sargent's.... per doz $2 88—dis 50&10&10%
Casters.
Bed.... dis 30&10%
Plate and Shallow Socket.... dis 40&10%
Deep Socket.... dis 33⅓%
Cattle Leaders.... new list dis 60&10%
Chain
English Coil.... net
lb.... 12¼ 9¼ 8½ 7¾ 7½ 7¼c
3-16 ¼ 5-16 ⅜ 7-16 ½
Trace, 6½-10-2.... by the cask, ₩ pair, gold 57c
Trace, 7-10-2.... by the cask, ₩ pair gold, 62c
German Halter Chain.... dis 25%
German Coil.... dis 25%
Galvanized Pump Chain.... ₩ lb 13c
Jack Chain, Iron.... dis 50%
" Brass.... dis 40%
Chalk.
White.... ₩ gross, 63c net
Red.... ₩ gross, 90c net
Blue.... ₩ gross, $1·17 net
White Crayons.... ₩ gross, 16½c net
Chisels.
Socket Framing, Douglass.... dis 60&10%
" " Crossman.... dis 50&5&10%
" " Hart Mfg. Co.... dis 60&10%
" " Merrill.... dis 60&10%
" Firmers, Douglass.... dis 50&10&10%
" " Crossman.... dis 50&5&10%
" " Hart Mfg. Co.... dis 60&5%
" " Merrill.... dis 60%
Socket Corner.... dis 60&10%
Tanged Firmers.... dis 45&10%
Butcher's.... $5·50 to £ gold
Newbould's.... $5·50 to £ gold
Spear & Jackson's.... $5·50 to £ gold
Clamps.
Cabinet.... dis 60&10%
Judd's.... dis 45&10%
Lambert's.... dis 20%
Providence Tool Co.... dis 10%
Clips, Axle.
Norway or Best.... dis 30%
Superior.... dis 50%
"Star," Superior Philadelphia.... dis 45&5%
Coal Shovels.
Iron Handled.... ₩ doz, $ 85 @ 1 25
Wooden Handled.... ₩ doz, 1 00 @ 2 00
Coal Hods.—Smith, Burns & Co.... dis 15 @ 25%
14 15 16 17 18 inch.
Japanned.... $6·00 6·35 6·75 7·50 8·00 per doz.
Galvanized.... 9·50 10·00 10·75 11·50 12·50 "
Morning Glory Funnel Hods—
No. 15 16 17
Japanned.... $9·00 10·50 12·00 per doz
Galvanized.... 13·00 14·50 16·00 "
Sidney Shepard & Co.'s new list.... dis 10%
Cockeyes.... 1⅛ in., 34c.; 1¼ in., 38c.; 1⅜ in., 43c. net
Cocks.
Brass Racking.... dis 25%
Lock and Globe.... dis 25%
Lever Bibbs.... dis 25%
Coffee Mills.
Board and Box.... dis 15%
Increase Wilson's.... dis 15%
Selsor's Pat.... $9·50, $10·50—dis 25%
American (Enterprise Mfg. Co.).... dis 20%
French Steel.... dis 15%
The Swift.... dis 25%
Compasses and Dividers.
Bemis & Call Co.'s.... dis 35&10%
Cook's.... dis 15%
Excelsior.... dis 30%
Peck Stow & Wilcox.... dis 25%
Coopers' Tools.
Bradley's.... dis 15 @ 20%
Chas. E. Little.... dis 20 @ 25%
Swan & Brombacher.... dis 15 @ 20%
Corkscrews..... dis 25%
Corn Knives and Cutters.
Bradley's.... dis 10%
Crow Bars.
Cast Steel.... ₩ lb 11c. net
Iron, steel points.... ₩ lb 6c
Crucibles.—Gautier & Co.... ₩ No. 5½c
Curling Irons, &c.
½, ⅝, ¾ in., $1·80, $2·00, $2·40.... dis 10%
Curling Tongs.... ₩ doz $6 50—dis 15%
Pinching Irons.... ₩ doz 7 50—dis 20%
Curry Combs.
Hotchkiss' and Kellogg's, Iron and Brass.... dis 20&10%
Fitch's (List of No. 240, $1).... dis 20&10%
Rubber.... ₩ doz, $9·00—dis 15%
Lawrence Curry Comb Co.... new list, Jan., 1875, dis 25%
Curtain Pins.—Silvered Glass.... old list dis 52½%
Cutlery.
American Table { Meriden } New list Jan. '75, dis 25%
American Pocket { Cutlery Co }.... dis 25%
Am. Pocket—Humason & Beckley Mfg. Co.... dis 20&10%
Dippers.
Britannia.... per doz 7·50—dis 30%; by bbl. dis 33⅓%
Cocoa, Plain.... per doz $3·25—dis 20%
" Rimmed.... per doz 3·75—dis 20%
Dog Collars.
Embossed Gilt.... dis 20%
Leather.... dis 20%
Brass.... dis 25%
Door Springs.
Gray's.... $7·50 ₩ doz—dis 50&10%
Torrey's Patent.... $7·50 ₩ doz—dis 55%
Johnson's.... per doz $3 00 @ 4 00
Palmer's Japanned No. 6.... ₩ doz $5·00 / " Coppered ".... " 6·00 / " Silvered ".... " 8·00 } dis 20%
Challenge.—
Japanned.... ₩ doz $4 00 @ 6 25—dis 40%
Gem.—No. 1 large, Japanned.... per doz $4·00 / No. 2 medium.... per doz 3·50 / No. 3 small.... per doz 3·00 } dis 10%
Barker's Concealed.... dis 12½%
Drawing Knives.
Crossman's No. 1.... dis 50&5&10%
Douglass.... dis 60&10%
Hart Mfg. Co., No. 1.... dis 60%
Merrill.... dis 60&10%
Bradley's.... dis 25%
Adjustable Handle.... dis 15%
Drills.
Blacksmiths'.... each $2 60 net
Breast, P. S. & W.... dis 15&10%
" Miller's Falls.... dis 25%
" Aiken's.... $3·50; 4·00, dis 40%
" Hotchkiss'.... dis 10%
Ratchet, Merrill's.... dis 20%
" Ingersoll's.... dis 25%
" Whitney's.... dis 20%
" Moore's Triple Action.... dis 20%
Drill Chucks.—The Danbury.... each 10·00, dis 20%
Beach Patent (Morse).... dis 15%
Egg Beaters.
Monroe's.... 8 in. 10 in. Per doz $8·00 9·00.... dis 10%
Dover.... ₩ doz net $6·00
National.... ₩ doz $4·50—dis 20%
Peerless.... ₩ doz $4·00—dis 10%
Emery.
Genuine Chester—Regular Nos.... ₩ lb 7c / " Flour and FF.... ₩ lb 4c } dis 10%
Washington Mills—Regular Nos.... ₩ lb 8c
" Flour.... ₩ lb 5c
Enameled and Tinned Ware.
Kettles.... dis 30%
Sauce Pans.... dis 25%
Glue Kettles.... dis 20%
Tinned Saucepans.... dis 25%
Escutcheons.
Door Lock.... Same discounts as Door Locks
Brass Thread.... dis 60&10%
Wood.... dis 25%
Faucets.
Fenn's.... dis 50%
" Cork Stops.... dis 40%
Star.... dis 55&10%
Frary's Patent Petroleum.... dis 15&10%
Taylor's Pattern ".... dis 20&10%
Wood and Metallic.... dis 40%
Wood, Cork Lined.... dis 60&10%
Enterprise Mfg. Co., Self-Measuring.... dis 20%
Felloe Plates.... ₩ lb 14c; dis 10%
Files.
American File Co.... $5 00 to £ currency—dis 10%
Nicholson.... new list, Jan. 1, 1875, net
Hartford File Co.... $5 50 to £ currency—dis 10%
"Western".... 5 00 to £ net
Rothery's.... $5 to £ currency
J. & Riley Carr.... 5 25 to £ gold
" " Horse Rasps.... 5 50 to £ gold
Stubs'.... 8 50 @ 9 00 to £ gold
Butcher's.... 5 25 to £ gold
Walter Spencer & Co.'s "Diamond".... 5 25 to £ gold
Spear & Jackson's.... 5 00 to £ gold
Jowitt's.... 5 25 to £ gold
Newbould's.... 5 25 to £ gold
W. K. & C. Peace's "Imperial".... 5 25 to £ gold
R. Ibbotson.... 5 00 to £ gold
Fisher's.... 4 75 to £ gold
Goodlad's.... 4 00 to £ gold
Moss & Gamble.... 5 25 @ 5 50 to £ gold
Thos. Turner & Co. (Peter A. Frasse & Co.) 5 00 to £ gold
" " Horse Rasps.... 5 25 to £ gold
"Philo Sheffield," P. T. Co.... 5 00 to £ gold
Limet & Co. (French).... 4 50 @ 5 00 to £ gold
Fluting Machines.
Mrs. Coles'.... 5 in., $6·00; 7 in., $7·00
" Pony..4 in., $4·75; 5 in., $5 6 in., 5·50; 7 in., $6
Knox, with 4-inch Rolls.... 5 00 each net
" " 6 ".... 6 00 each net
" " 8 ".... $9 00 each net
O. K.... 6 50 each net
Peerless, 4-inch Rolls.... 4 00 each net
" 5 ".... 4 75 each net
Excelsior, No. 1.... 4 75 each net
" No. 2.... 6 50 each net
Diamond.... 7 50 each net
Climax 7-inch Rolls.... 8 00 each net
" 4½ ".... 6 50 each net
Empire.... 4 00 each net
Eureka, No. 1, 7-inch Roll.... 8 00 each net
" No. 2, 5-inch Roll.... 6 00 each net
K. F. M., 4½-inch Roll.... 5 50 each dis 15%
" 6-inch Roll.... 6 00 each dis 15%
Myers' Fashion Fluter, 4½-inch Rolls.... 3 00 each net
" Convex Brass Fluter, Sad Iron attachment.. $1·75
Domestic Fluter.... $1·75 each net
Fairy, Self-Heater.... 90 each net

Geneva Hand Fluter.... $15 00 per doz net
Champion, 6 inch rolls.... $6 00 each dis 10%
" 4 inch rolls.... $5 00 each dis 10%
Fluting Scissors.... dis 25&10%
Forges.
"Empire" (W. P. Kellogg & Co.).... dis 20%
Forks.
Hay, Manure & Spading.... dis 30%
Plated A 1.... dis 40, 10&5%
Fry Pans.
Burnished, P. S. & W.... dis 30%
₩ doz.... $2·60 3·00 3·38 3·75 4·12 4·50 5·00 5·62 6·75
No.... 0 1 2 3 4 5 6 7 8
Smith, Burns & Co., "Excelsior" Polished.... dis 35%
₩ doz.... $3·70 4·00 4·70 5·30 6·00 7·00 8·00 9·00
No.... 1 2 3 5 6 7 8
Gas Stoves.
Tiff & Howard.... dis 20%
Gauges.
Marking.... dis 45&10%
Wire.... dis 10%
Gimlets.
Nail and Spike.... dis 25&10%
Double Cut, Shepardson's.... dis 20%
" " Ives'.... dis 25%
" " Douglass'.... dis 20&10%
Grind Stones.—J. F. Green & Bro.... dis 20%
Grind Stone Fixtures
Sargent's Patent.... dis 65&10%
Reading Hardware Co.... dis 66⅔&7½%
Hart Mfg. Co.'s.... dis 60&5&10%
Hammers.
Emmet Hammer Co.'s Handled.... dis 25%
" " Sledge & Stone.. ₩ lb 25 @ 30c net
Humason & Beckley Mfg. Co.... dis 16⅔&10%
Maydole's, new list.... dis 5%
Cheney's.... new list net
Verree.... dis 5%
Yerks & Plumb.... dis 12½%
Magnetic Tack.... dis 20&10%
Warner's.... list net
Hand Cuffs and Leg Irons.
Tower's Hand Cuffs, $4 00 per pair / " Leg Irons $3 50 per pair } dis 25%
Providence Tool Co.'s Hand Cuffs.. $15 per doz / " " Leg Irons.... 25 " } dis 10%
Handles.
Wrought Chest.... dis 60&10%
Surface Chest.... dis 65&10&10%
Flush Chest.... dis 60&10&10%
Lifting.... dis 60&10%
Coffin.... dis 50&10 @ 60&10%
Saw and Plane.... dis 20&10%
Hammer and Hatchet.... dis 10%
Greensboro', Axe, Pick, Hammer, &c.... dis 10%
North Carolina Handle Co.... dis 10%
Woolworth Axe, Pick and Sledge.... dis 10%
Brad Awl.... per gross $3 50—dis 20&10%
Hickory Firmer Chisel, ass'td " 5 25—dis 20&10%
" " " large " 6 50—dis 20&10%
Apple " " ass'td " 6 00—dis 20&10%
" " " large " 7 50—dis 20&10%
Socket " " ass'td " 8 50—dis 20&10%
" Framing " " " 7 00—dis 20&10%
File.... " " 4 00—dis 20&10%
" " " 6 50—dis 20&10%
Auger.... " " 8 00—dis 20&10%
" large
Patent Auger, Ives'.... dis 25&10%
" " Douglass'.... per set $1 25—dis 10%
" " Swan's.... per set $1 00—dis 10&10%
Hangers.
Barn Door.... dis 65&10%
"Anti-Friction" (Rider, Wooster & Co.).... dis 30%
Novelty.... dis 30%
Harness Snaps.
Henshaw's.... dis 25&10%
Judd's.... dis 40%
Fitch's (Bristol).... dis 30%
Hotchkiss'.... dis 10%
Andrews'.... dis 25%
Sargent's.... dis 50&10%
New York Wire.... dis 20&20%
Hatchets.—Isaiah Blood.... dis 10%
Shingling, Nos. 1 2 3.... ₩ doz $7 50 8 00 8 50
Claw, " 1 2 3.... ₩ doz 8 50 9 00 9 50
Lathing, " 1 2 3.... ₩ doz 7 50 8 00 8 50
Hunt's.... dis 10%
Shingling, Nos. 1 2 3.... ₩ doz $7 25 8 00 8 75
Claw, " 1 2 3.... ₩ doz 7 75 8 50 9 25
Lathing, " 1 2 3.... ₩ doz 7 50 8 25 9 00
Hurd's.... dis 25%
Shingling, Nos. 1 2 3.... ₩ doz $8 00 8 50 9 00
Claw, " 1 2 3.... ₩ doz 9 00 9 50 10 00
Lathing, " 1 2 3.... ₩ doz 8 00 8 50 9 00
Newark's Edge Tool Co.'s.... dis 25%
Shingling, Nos. 1 2 3.... ₩ doz $6 50 7 00 7 50
Claw, " 1 2 3.... ₩ doz 7 25 7 75 8 25
Lathing, " 1 2 3.... ₩ doz 6 50 7 00 7 50
Yerkes & Plumb.... dis 12½%
Shingling, Nos. 1 2 3.... ₩ doz $7 00 7 50 8 00
Claw, " 1 2 3.... ₩ doz 7 50 8 00 8 50
Lathing, " 1 2 3.... ₩ doz 7 00 7 50 8 00
Simmon's.... dis 15%
Shingling, Nos. 0 1 2 3.... ₩ doz $7 50 8 00 8 50 9 00
Claw, " 1 2 3.... ₩ doz 9 00 9 50 10 00
Lathing, " 1 2 3.... ₩ doz 8 00 8 50 9 00
Broad, " 1 2 3.... ₩ doz 9 00 10 00 12 00
" " 4 5 6.... ₩ doz 14 00 16 00 18 00
" " 7 8.... ₩ doz 20 00 22 00
Elephant.... dis 25%
Shingling, Nos. 1 2 3.... ₩ doz $8 00 8 50 9 00
Claw, " 1 2 3.... ₩ doz 9 00 9 50 10 00
Lathing, " 1 2 3.... ₩ doz 8 00 8 50 9 00
J. P. Verree & Co.... dis 5%
Shingling, Nos. 1 2 3.... ₩ doz $7 00 7 50 8 00
Claw, " 1 2 3.... ₩ doz 7 50 8 00 8 50
Lathing, " 1 2 3.... ₩ doz 7 00 7 50 8 00
Underhill's.... dis 10%
Shingling, Nos. 1 2 3.... ₩ doz 7 25 8 00 8 75
Claw, " 1 2 3.... ₩ doz 7 75 8 50 9 25
Lathing, " 1 2 3.... ₩ doz 12 00 11 00 13 00
Hinges.
Gate, Western.... ₩ doz $6·25—dis 60&10%
" N. E.... ₩ doz 11·25—dis 60&10&10%
" N. Y. State.... ₩ doz 7·20—dis 60&10%
Rolled Plate.... dis 65&10%
" Raised.... dis 65&10%
Wrought Strap and T.... dis 35&10 @ 40&10%
Providence Plate. { 6 and 8 in. 11c ₩ lb / over 8 in. 9½c ₩ lb }.... dis 25 @ 30%
Screw Hook and Strap.... { 8, 10, 12 in. 7c / 14 to 36 in. 6c }.... net
Heavy Welded Hook.... { 8 to 12 in., 6½c / 14 in. & up, 6c }.... net
Screw Hook and Eye.... { ¾ to 1 in., 8¾ / ⅝ in. 9⅝ / ½ in. 11½ }.... net
Screw Hook and Eye, Sargent's— ½ ⅝ ¾ inch.
Per doz pairs $4·75 7·25 10·25—dis 65&10&10%
Hoes.
Solid Shank, C. S.... ₩ doz $8 00—dis 30%
Socket.... ₩ doz 9 00—dis 30%
Riveted Eye.... ₩ doz 5 00—dis 30%
Grub.... dis 25%
Planters.... net @ 10%
Scovill.... add 33⅓%
Scovill Pattern.... net @ 5%
Lane's C. S. Cresent, American Pattern.... add 5%
" " " Scovil Pattern.... add 15%
Hooks.
Bird Cage.... dis 60&10 @ 70&10%
Cotton.... dis 50%
Belt.... dis 50&10%
Bench—Skinner's.... per doz $8 00, dis 30&10%
Bench—Hotchkiss' $5 00 ₩ doz.... dis 10%
Bench—Weston's No. 1, $8·00; No. 2, $7·00 per doz net
" —McGill's.... $3 00 per doz, dis 10%
Clothes Line, Harness, Wardrobe, Hat and Coat, Ceiling. } Hart's list.... dis 60&10&10%; Sargent's list.... dis 60&5&10%; Reading list.... dis 33⅓&10%
Wrought Staples and Hooks and Staples.... dis 70&10%
Wire Screw Hooks and Eyes.... dis 65&10&10%
Grass.... dis 20%
Whiffletree—Patent.... dis 30%
Hooks and Eyes—Malleable Iron.... dis 60&10&10%
" Brass.... dis 60&10&10%
Horse Nails.
Putnam's.
No.... 5 6 7 8 9 10
32c 28c 26c 25c 24c 23c
In lots 3000 lbs. dis. 5%.
Ausable Horse Nail Co.
No.... 5 6 7 8 9 10
Ausable.... 30c 27c 25c 24c 23c 22c
Pointed and Polished.. 31c 28c 26c 25c 24c 23c
Pointed and Blued.. 32c 29c 27c 26c 25c 24c
In lots of 1000 lbs., 5% discount.
Brundage.
No.... 5 6 7 8 9 10
29c 26c 24c 23c 22c 21c
In lots of 500 lbs., dis. 5%.
American Pressed.
No.... 5 6 7 8 10
22c 20c 20c 20c 20c 20c
In lots of 1000 lbs. dis 5%.
Perkins Finished (ready to drive).
No.... 5 6 7 8 9
31c 28c 26c 25c 24c
In lots of 1000 lbs. dis 5%.
Buffalo Forged.
No.... 6 7 8 9 10
28c 26c 25c 24c 23c
Globe (Pointed and Polished).
No.... 5 6 7 8 9 10
31c 28c 26c 25c 24c 23c
In lots of 1000 lbs., 5% discount.
National (Pointed and Polished).
No.... 5 6 7 8 9 10
Patent Finish.... 28 25 23 22 21 20
Extra ".... 30 27 25 24 23 22
In lots of 1000 lbs., dis 5%.
Vulcan (Blued, pointed, ready to drive).
No.... 5 6 7 8 9 10
33c 30c 28c 27c 26c 25c
In lots of 500 lbs., 5% discount.
" 1000 lbs 7½% discount.
New London Horse Nails.
No.... 6 7 8 9 10
Great Western.... 27c 25c 24c 23c 22c
U B.... 29c 27c 26c 25c 24c
In lots of 1000 lbs., dis 5%.
Star Brand.... ₩ lb 16c
Morgan.... 14c
Horse Shoes.
Burden.... ₩ keg, $5 85
R. I. Horse Shoe Co., Perkins Pattern.... ₩ keg, 5 85
" " R. I. Pattern.... ₩ keg, 6 35
Mule Shoes.... ₩ keg, 6 85
Kettles.
Brass.... ₩ lb 45c net
Enameled.... dis 30%

Knives.
Ames' Butcher Knives.... dis 30%
" Shoe ".... dis 15%
" Bread ".... ₩ doz $1·50—dis 15%
Hay and Straw, "Wadsworth's".... dis 20%
Lothrop's Cocoa Handle Lap Bolster Butcher Knives.... dis 25%
Knobs.
Carriage.... dis 60&10%
Base—Common.... net
" Plush Tip.... dis 10%
" Elastic End, No. 8.... dis 30&10%
Door, Mineral.... ₩ doz $2·25 / " Por. Jap'd.... ₩ doz 3·00 / " " Plated.... ₩ doz 7·00 / " " Por.... ₩ doz 7·50 } dis 45&5&2%
Ladles.
Melting, Hart's.... dis 55&10%
" Sargent's.... dis 50&10%
" Reading.... dis 15&10%
Lanterns.
Tubular.... No. 0, $12 50—dis 15%
Peerless.... No. 5, per doz $11·75—dis 10&10%
Brady's Patent.... dis 10 & 10%
Ætna.... dis 10 & 10%
Yankee.... dis 10 & 10%
De Beque.... dis 10 & 10%
Lard Presses.
Draw Cut, 14 inch.... each $65 00—dis 20%
Lemon Squeezers.
Porcelain Lined.... per doz $6 30, dis 10%
Lines.
Linen Fish.... dis 10&10%
Cotton Chalk.... dis 40%
Silver Lake Chalk.... dis 10&10%
Mason's.... dis 10&10%
Galvanized Wire Clothes.... $1 per 100 ft. dis 33⅓%
Locks and Latches.
Cabinet—Gaylord.... dis 25%
" Eagle.... dis 25%
Trunk.... new list dis 25%
Langstroth & Crane, Round Key.... dis 40%
" " Flat Key.... dis 33⅓%
Barnes & Deitz.... dis 25%
Continental.... dis 15%
Shepardson's.... dis 20%
American Lock Co.... dis 33⅓%
Plate.... dis 25%
Yale Lock Co.... dis 40%
Sargent & Greenleaf.... dis 20%
Trenton / Branford / Norwich / Russell & Erwin / Norwalk / Nashua / Mallory, Wheeler & Co. / P. & F. Corbin / Parker & Whipple / Jacobus & Nimick Mfg. Co. } Rev'd list of Jan. '75 dis 45&5%. 2% extra for cash.
Padlocks, Russell & Erwin / Mallory, Wheeler & Co. / Wm. Wilcox & Co. } List of Jan., '75. dis 50&5&2
" Romer's.... dis 15%
" Vulcan Hardware Co.... dis 20%
" New York Lock Co.... dis 20%
" J. H. McWilliams.... dis 5%
" Scandinavian Jail.... dis 10%
" Barnes & Deitz.... dis 25%
" D. K. Miller Lock Co.... dis 30%
Mallets.
Hickory and Lignumvitæ.... dis 20%
Meat Cutters.
Dixon's (P. S. & W.).... dis 10%
No.... 1 2 3 4
₩ doz.... $14 00 $17 00 $19 00 $30 00
Hales'.... dis 25%
No.... 11 12 13
₩ doz.... $27 00 $38 00 $42 00
Miles Challenge.... dis 20%
No.... 1 2 3
₩ doz.... $22·00 $30·00 $40 00
Perry's Champion (P. S. & W.).... dis 10%
No.... 200 300 400
₩ doz.... $22 00 $27 00 $40 00
Woodruff's (P. S. & W.).... dis 10%
No.... 100 150
₩ doz.... $15 00 $18 00
American.... dis 25 @ 25&5%
No.... 1 2 2½ 3 4 B 5
Each.... $6·00 $9·00 $12·00 $15·00 $30·00 $60·00 $75·00
Draw Cut.... dis 20%
No.... 5 6 8
Each.... $56·00 $90·00 $250 00
Molasses Gates.
Stebbins'.... dis 65&10%
" Tinned ends.... dis 40&10%
Bush's.... dis 20%
Lincoln's.... dis 50%
Weed's.... dis 15%
Mortars and Pestles.
Iron.... net
Nails..... See Trade Report
Nuts and Washers.
Nuts.... large, 6c; small, 8c off list.
Washers.... large, 8c; small, 10c off list.
Oil Stones.
Washita No. 1.... ₩ lb 22c
Washita Slips.... ₩ lb 45c
Washita No. 2.... ₩ lb 17c
Arkansas.... ₩ lb 1 25—dis 12½%
" Slips.... ₩ lb $2 00—dis 12½%
Hindostan.... ₩ lb 6c dis 10&10%
" Slips.... ₩ lb 10c dis 10&10%
Sand Stone.... 6c—dis 10&10%
Oilers.
Miller's Zinc.... dis 40%
" Brass and Copper.... dis 30%
Sheet Metal Screw, Zinc.... dis 37½%
" " " Brass.... dis 33⅓%
Olmsted's.... dis 25&10%
Broughton's.... dis 25&5%
Malleable.... per doz $5 00 dis 10%
Prior's Patent or "Paragon".... dis 30&10%
Ox Shoes.
Concave.... ₩ lb 13c net
Ox Balls..... dis 60&10%
Pencils.
Faber's Carpenters'.... net
" Round Gilt.... ₩ gross $6 00 net
Dixon's Lead.... ₩ gross $4·50 net
" Lumber.... ₩ gross 9·00 net
Picture Nails and Knobs.
Brass Head.... dis 60&10%
Porcelain Head.... dis 55&10%
Richards' Patent.... dis 40 @ 40&10%
Judd's.... dis 60&10%
Pinking Irons..... per doz $2 75—dis 65%
Planes.
First Quality.... dis 35%
Second Quality.... dis 50%
Bailey's Patent Adjustable.... dis 20&10%
Plane Irons, Butcher's.... $5 50 to £ gold—new list
" Auburn Tool Co.'s.... dis 25%
" Chapin's.... dis 10&10%
" Greenfield Tool Co.... net list
" Middletown Tool Co.... net list
" Ohio Tool Co.... dis 10%
" Spear & Jackson's.... 5 50 to £ gold—new list
" Sandusky Tool Co.... dis 10%
" Bailey's.... dis 20&10%
Plow Bits, Greenfield Tool Co.... dis 10%
Pliers and Nippers.
Button's Patent.... dis 33⅓%
Hull's Patent Nippers.... dis 25%
Leach's Patent Wire Cutters.... per doz $6 50—dis 15%
Plumbs and Levels
Chapin's.... dis 66⅔&10%
Standard Rule Co.'s New Adjustable.... dis 60&10%
Standard Rule Co.'s Non-Adjustable.... dis 60&10&10%
Stanley R. & L. Co.'s Pat. Adjustable.... dis 60&10%
" " " Non-Adjustable.... dis 60&10&10%
Pocket Levels.... dis 50&10%
Johnson's Patent Adjustable.... dis 60&10%
Pulleys.
Hot House and Tackle.... dis 60&10%
Jap'd Screw.... dis 60&10%
Brass Screw.... dis 60&10%
Jap'd Side.... dis 60&10%
" Clothes Line.... dis 60&10%
Hay Fork.... per doz $4 50 @ 5 00, dis 10%
Pumps.
Douglas Cistern, etc.... new list dis 25%
" S. & F.... new list dis 20%
Union Mfg. Co's. Cistern and Pitcher.... dis 25%
" " " Rams.... dis 20%
" " " Garden Engines.... dis 10%
Cucumber (Burlingham & Purdy)—
6 ft. No. 3, with 12 ft. pipe.... $4·00 net
6 ft. No. 1, with 12 ft. pipe.... 4·50 net
From 6 to 36 ft. add 20 cents per ft.
Pipe, 8c. per ft.; Coupling, 20c. per ft.
Punches.
Belt or Drive.... per doz $1·50 net
Spring.... per doz $7·00—dis 20&10%
Rail.
Sliding Door, Wrought Brass.... ₩ lb 44c., dis 10%
" " Iron, Painted.... ₩ foot 9c—dis 55&10%
Barn Door, ½, ⅝ and ¾ inch.... dis 60&10&10%
" " for N. E. Hangers.... dis 60&10&10%
Rakes.
Cast Steel.... dis 30%
$8 00 9 00 10 00 11 00
8 10 12 14 teeth.
Malleable.... dis 30%
$5 00 5 50 6 00 6 50
9 11 13 15 teeth.
Razor Straps.
Evan's.... dis 25&10%
Genuine Emerson (B. F. Badger or C. Emerson).. dis 25%
Imitation Emerson.... ₩ doz $2·75—dis 35%
Hunt's.... dis 40%
Chapman.... dis 10 @ 15%
Torrey's.... dis 10&10%
Saunder's.... net @ 10%
Rivets.—Old Colony.
Iron and Tinned.... dis 25&7½%
In bulk.... dis 7½%
Copper Rivets and Burrs (No. 8, 50c).... dis 30%
Rivet Sets.... net
Rods.
Stair.... new list dis 33⅓%
" American Patent.... dis 33⅓%

Rollers.
Barn Door.... revised list dis 60, 10&10%
Novelty.... dis 10%
Rope. Manufacturers' List of Jan. 7, 1875.
Manila.... ½ inch and larger ₩ lb 15 c
" .... ⅜ inch ₩ lb 15½c
" .... ¼ and 5-16 inch ₩ lb 16 c
Manila Lath Yarn and Tar'd Rope.... ₩ lb 14½c
" Hay Rope.... ₩ lb 15½c
Sisal.... ½ inch and larger ₩ lb 12 c
" .... ⅜ inch ₩ lb 12½c
" .... ¼ and 5-16 inch ₩ lb 13 c
" Hay Rope.... ₩ lb 12½c
Rules.
Chapin's Boxwood.... dis 66⅔&10%
" Ivory.... dis 50&10%
Hubbard & Curtiss Mfg. Co.... dis 60&20%
Stanley Rule and Level Co.'s Ivory.... dis 50&10%
" " " Boxwood.... dis 60, 10&10%
Standard Rule Co.'s Boxwood.... dis 70%
" " " Ivory.... dis 50&10%
Sad Irons.
From 4 to 10 lbs.... ₩ lb 3¾ @ 4c net
Sad Iron, Nickel Stand attached.... ₩ lb 9c
Self-Heating.... per doz $10 00 net
" " Tailors'.... per doz 22 25 net
Sand Paper.
Beader & Adamson's (Flint) 00 to 1½. $4 25 ₩ ream
" " " 2, 2½ & 3. 4 75 "
" " Assorted.... 4 25 "
" " Star.... ₩ ream $3 25
" " Emery.... ₩ ream $6 50 @ 11 50 } dis 15%
H. B. & M. Roman Flint.... dis 15%
Sash Cord.
Common.... ₩ lb 20 @ 22c. net
Silver Lake, Russia Flax.... ₩ lb 55c / " " White Cotton.... ₩ lb 55c / " " Drab Cotton.... ₩ lb 60c } net
Sash Locks.
Clark's, Nos. 1 and 2.... dis 33⅓%
Ferguson's.... dis 33⅓%
Norwich.... dis 15%
Walker's.... list net
Sash Weights.—Solid Eyes.... ₩ lb 2½c
Sausage Stuffers or Fillers.
Miles.... ₩ doz $20—dis 10%
Stow or Perry.... ₩ doz No. 1, $15; No. 0, $21—dis 15%
Draw Cut No. 4.... each $30 00—dis 20%
Saw Frames.... per gross $18 00—dis 10&10%
Saw Rods.... $10 list, dis 10&10%
Saws.
Spear & Jackson's oldpattern.... $4 50 to £ gold
Spear & Jackson's American Pattern.... $3·55 to £ gold
John Spear.... $3 60 to £ gold
Am. Saw Co.... new list
Perforated Cross Cuts, all kinds.... 68c ₩ foot
Inserted Tooth.... dis 10%
All else.... dis 12½%
Disston's Circular.... dis 20%
" Mill.... dis 25%
" Cross Cut.... dis 15%
" other kinds.... dis 12½%
Livingston's Framed Wood.... dis 10%
Livingston's Butcher and Kitchen.... dis 10%
H. W. Peace's Circulars.... dis 10%
Other kinds.... dis 10%
Wm. McNiece's Hand, Cross Cut and Circular.... new list dis 15%
Wm. McNeice's Patent Pole Pruning Saw.... dis 10%
" " " Compass Saw.... net.
E. M. Boynton's Lightning.... dis 40% for immediate cash
" " Others.... dis 15%
Wheeler & Clemson Mfg. Co.'s Hand.... dis 15%
" " " Cross-Cut.... dis 30%
Saw Sets.
Stillman's Genuine.... ₩ doz $5·00—dis 10%
" Imitation.... ₩ doz 3·25—dis 10&10%
Aiken's Pattern.... ₩ doz 7·00—dis 25&10%
" Genuine.... ₩ doz $15·00—dis 25%
Hart's Patent.... dis 15%
Nash's.... dis 20&10%
Bemis & Call's.... dis 30%
Hotchkiss'.... ₩ doz 5·50—dis 10%
Common Lever.... per doz $2 00—dis 10&10%
Leach's.... dis 15%
Scales.
Hatch, Counter.... ₩ doz $36—dis 25%
" Tea.... ₩ doz $15—dis 25%
Turnbull's.... dis 20%
Brown's.... dis 25&5%
Fairbanks'.... new list dis 15 @ 20%
Howe's.... dis 15&5%
Shattuck's Counter and Union.... dis 15%
Chatillon's Grocers'.... dis 25%
Eureka.... dis 25%
Universal Family.... dis 20%
Scale Beams.
No. 1 300 to 1200 lbs.... 90c ₩ cwt / No. 2 " ".... 75c ₩ cwt } dis 25&10%
Scrapers.
Box, 1 Handle.... per doz $6·25, dis 10%
" 2 ".... per doz 7·50, dis 10%
Foot.... dis 60 & 10%
Ship (common).... per doz $3 00 net
Ship—Providence Tool Co.... dis 10%
Screws.
American list of Jan. 1, 1874.
Flat Head Iron.... dis 52½%
Round Head Iron.... dis 50%
Flat Head Brass.... dis 52½%
Round Head Brass.... dis 50%
Round Head Silver Capped.... dis 35%
Hand Rail.... dis 55&10%
Coach or Lag.... dis 30&10 @ 40%
Coach, Patent Gimlet Point, List Jan. 1, 1875.... dis 35%
Bed.... list net
Japanned (List of Flat Head Iron).... dis 40%
English—Nettlefold & Chamberlain's Flat Head Iron.... dis 52½&10%
Machine—Flat Head, Iron, List Jan. 12, 1875.... dis 25%
" " Brass.... dis 15%
Round Head, Iron.... dis 20%
" " Brass.... dis 10%
Birmingham Screw Co. (A. Field & Co.), Flat Head Iron.... dis 52½&10%
Bench—Iron.... dis 60, 10&10%
" —Wood, Beach.... ₩ doz $3·00 net
" " Hickory.... dis 20&10%
Hand.... dis 25&10%
Jack—Bell Bottom.... dis 15%
Scythes.
Blood's German Steel, Grass.... ₩ doz $9 00
" Cast " ".... ₩ doz 10 00
" Silver " ".... ₩ doz 11 00
" German " Grain.... ₩ doz 13 00
" Cast " ".... ₩ doz 14 00
" Red Rover.... 12 00
" Young America.... 9 50
" Silver Clipper.... 12 63
Scythe Snaths.... dis 20%
Sieves.—Mann's Patent.... dis 25%
Shears.
Cast Steel.... dis 70&10%
Cast Iron.... dis 25&10%
Seymour's Straight Trimmers.... dis 60&10%
" Scissors.... dis 45&10%
Pruning.... per doz $9 00—dis 25&10%
Sheaves.
Sliding Door.... dis 45&5&2%
" Patent Roller.... dis 25%
" " Hatfield's.... dis 50%
" Russell's Anti-Friction.... dis 50%
Sliding Shutter.... dis 50&10&10%
Shovels and Spades.
Ames.... dis 12½%
Birmingham Shovel Co.... dis 15%
Rowland's.... dis 25%
Old Colony.... new list dis 10&5%
Middleboro' Shovel Co.... new list dis 12½%
Dunning's Shovels and Scoops.... dis 20&7½%
Snow Shovels.... ₩ doz $7 00 @ 8 00 net
Shovels and Tongs.
Iron and Brass Head, R. & E. list.... dis 50%
" " Hart's.... dis 50&10%
Polished Steel.... new list dis 50%
Skates.
Barney & Berry's
N. Y. Club.... ₩ pair $2·75 / B. & B. Club.... " 3·50 / All Clamp.... " 4·25 / Rink.... " 8·00 } dis 25%
Florence Club.... per pair $3·50—dis 25%
" Steel.... per doz $9 net
Peck & Snyder's—
American Club, Polished.... ₩ pair $5·00
" " Blued Top.... ₩ pair $3·75 net
Slates.
Square Frames, Round Cornered, by case.... dis 65&10%
Less than a case.... dis 65%
Oval Frames, by case.... dis 40 @ 40&10%
Less than a case.... dis 30%
Spoke Shaves.
Iron.... dis 33⅓&10%
Wood.... dis 30%
Bailey's.... dis 10&10%
Spoons.
Iron.... new advanced list, dis 10%
By the case.... dis 20%
Britannia.... dis 45&10%
Rogers & Bro., A 1.... dis 50%
Derby Silver Co.... dis 50 & 5%
Holmes, Booth & Haydens.... dis 50%
Nickel Silver Co.... dis 40%
German Silver.... dis 30%
Tinned (P. S. & W.)—
Teas.... $1·50 ₩ gross, net
Tables.... 2·75 " net
Stocks and Dies.... dis 15%
Stove Polish.
Gem.... ₩ gross $5 00, dis 10%
Joseph Dixon's.... ₩ gross, 6 00
Gold Medal.... ₩ gross $6 00 dis 15%
Squares.
Steel.... dis 50%; full cases, dis 50&10%
Iron.... dis 50%; full cases, dis 50&10%
Nickel Plated.... add $2 50 @ $4 00 ₩ doz net
Try Squares and T Bevels.... dis 45&10%
Star Try Squares and Bevels.... dis 30%
Disston's Try Squares No. 1.... dis 20%
" " No. 2.... dis 40%
" " Improved.... dis 20%
Tacks.
Full Weight American Iron.... dis 45&7½%
Half Weight American Iron.... dis 72½&7½%
Carpet.... dis 7½%
Brads American Half Weight.... dis 50&7½%
Finishing Nails.... ½ ⅝ ¾ 1 1¼ in. and over
₩ lb.... 25c 20c 18c 14c 12c dis 7½%
Trunk and Clout.... ½ ⅝ ¾ 1 1¼ in. and over
₩ lb.... 25c 20c 18c 14c 12c dis 7½%
Copper Tacks.... ₩ lb 50c—dis 7½%
Iron Shoe Nails, ₩ lb 4-8 and longer, 9½c; 3½-8, 10c.... dis 7½%
Double Pointed.... dis 33⅓&10%

Tapes, Measuring.
American Flask and Cap Co .... dis 20 %
Eddy's .... dis 20 %

Tea Trays.
American Tea Tray Co .... dis 15 %

Thermometers.
Tin Case .... dis 50&10 %

Toe Calks.
.... ℔ 13c net

Tobacco Cutters.
Enterprise Mfg. Co .... dis 20 %
Morse's .... ℔ doz $12·00—dis 10&10 %
Wood Bottom .... per doz $12—dis 20&10 %
All Iron .... per doz $19·50—dis 20&10 %

Tinners' Tools and Machines.
P., S. & W .... list net

Traps.
Newhouse .... dis 20 %
Peck, Stow & Wilcox .... dis 30 %
Blake's Patent .... new list dis 25 %
Mouse, Wood Choker .... ℔ doz holes. 15 @ 16c
" Patent Choker (Union Nut Co.) .... ℔ doz holes 16 @ 18c net
" Round, Wire .... ℔ doz $1 50 to 2 00 net
" Square, " .... ℔ doz 2 00 to 2 50 net
" Cage, " .... ℔ doz 2 50, dis 10 %

Trowels.
Lothrop's Brick and Plastering .... dis 10 %
Disston's Plastering .... dis 12½ %
Disston's Brick .... dis 12½ %
Rose's Brick .... dis 5 %
Brades' Brick .... gold. dis 10 %
Worrall's Brick and Plastering .... dis 20 %
Garden .... dis 25 %

Triers.
Butter and Cheese .... dis 25 %

Ventilators (Window).
Nickel and Gilt .... per dozen $16·00 @ 18 00

Vises.
Trenton Vises, Solid Box.
30 to 100 lbs 16c
100 and over 19c
Peter Wright's .... ℔ 15½c. gold
Wilson's Solid Box .... dis 15 %
30 to 100 lbs 18c
100 and upward 22c
Wilson's Parallel .... dis 30 %
Sargent's " .... dis 50&10&10 %
Backus & Union, Parallel .... dis 25 %
Buffalo, Parallel .... new list dis 25 %
Fisher & Norris' Double Screw Parallel .... dis 15&10 %
Trenton Parallel .... dis 15 %
Merrill's Parallel .... dis 15 %
Parker's .... dis 20 %
Stephens' Parallel .... dis 15 @ 20 %
Bonney's Saw Filers .... per doz $20—dis 25 %
Stearn's Saw Filers .... per doz $20—dis 25 %

Wheel Barrows.
Canal (Pugsley & Chapman) .... new list dis 10 %
Coal, Garden and Stone (Pugsley & Chapman) .... dis 25

Well Wheels.
Revised list .... dis 60&10 %

Wire.
Brass and Copper .... dis 10 %
Bright and Annealed .... Nos. 0 @ 18 dis 45 @ 47½ %
" " .... " 19 @ 26 dis 55 @ 57½ %
" " .... " 27 @ 36 dis 60 @ 62½ %
Coppered .... " 0 @ 18 dis 40 @ 42½ %
Galvanized, Nos. 0 to 6 .... ℔ 8½ @ 9c net
Galvanized, Nos. 7 to 18 .... market list dis 10 @ 15 %
Tinned .... dis 25 @ 30 %
Cast Steel .... dis 15 @ 20 %
Tinned Broom Wire .... dis 30 @ 35 %
Galvanized Telegraph, Nos. 8 and 9 .... ℔ 9c @ 9½c
Galvanized Telegraph, Nos. 10 and 11 .... ℔ 10c @ 10½c
" " " 12 .... ℔ 10½c @ 11c
Annealed Fence, Nos. 8 and 9 .... dis 45 @ 50 %
" Grape, " 10 to 14 .... dis 45 @ 50 %
Fence Staples .... ℔ 7½ @ 8 %
Stubs' Steel Wire .... $7 00 to £ gold
Judd's Picture Wire .... dis 50

Wrenches.
American Adjustable .... dis 45 %
Baxter's Adjustable "S" .... dis 20 %
" Diagonal .... dis 20 %
Collins & Co.'s .... dis 45 %
Coes' Genuine .... dis 40&5 %
" Pattern (Wrought) .... dis 50&10 %
" " (Malleable) .... dis 60&10 %
Lindsay's Patent .... dis 25 %
Taft's Pattern .... dis 70 %
Davis' Patent Duplex .... new list dis 25 %
Bemis & Call's Patent Combination .... dis 20&5 %
" " Merrick's Pattern .... dis 25&2½ %
" " Brigg's Patent .... dis 15&10 %
Aiken's Pocket .... per doz $10·00—dis 45&10 %

Wringers.
Providence .... ℔ doz $64 00
Reliance .... ℔ doz 61 00
Universal—Extra .... ℔ doz 64 00
Novelty .... ℔ doz 64 00
Sherman .... ℔ doz 64 00
Eureka (Friction) .... ℔ doz 60 00

TIN WARE AND TRIMMINGS.

STAMPED TIN WARE, dis 5 %.
COMMON STAMPED WARE, &C.

Bucket Covers.

Quarts	½	1	2	3	4
Inch	4½	5 5-16	6 5-16	6¾	7 11-16
Per gross	$2·00	2·60	3·40	4·25	5·75
Quarts	6	8	10	12	
Inch	8¾	9½	9¾	10 9-16	
Per gross	$6·50	8·00	8·50	11·50	

Cake Box Covers.

	Small.	Medium.	Large.
Inch	11¼	12¾	13½
Per gross	$15·00	18·00	22·00

Pot Covers.

Inch	7¾	8¼	8¾	9¼	9¾	10¼
Per gross	$5·75	6·00	6·25	6·75	7·25	8·25
Inch	10¾	11¼	11¾	12¼	12¾	13¼
Per gross	$8·75	9·50	10·00	11·00	13·75	16·50

Pie, Dinner or Scolloped Plates.

Inch	6	7	8	9	10	11
Per gross	$4·00	4·50	5·50	5·50	8·50	10·50

Deep Pie Plates.
Inch 9 10
Per gross .... $8·50 .... 10·50

Jelly Cake Pans.
Inch 9 10
Per gross .... $7·50 .... 10·00

Coffee Pot Covers.

Plain	1½	2	3	4	5	6 qts.
Inch	3	3½	3¾	4½	5	
Per gross	$1·15	1·40	1·60	2·00	2·75	3·00
Rimmed	2¾	3	3½	4	4½ inches.	
Per gross	$2·25	2·50	3·00	3·50	4·00	

T. K. Breasts only.

Inch	7½	8	8½	9	9½	10	10½	11	11½
Per gro.	$6·00	6·50	6·75	7·25	7·25	9·50	10·00	12·00	13·00

Grater Plates.
Sheet .... ½ .... ¾ 1
Per gross .... $4·00 .... 6·00 .... 11·50

Scolloped Cake Pans.
Small. Large.
Without Tubes .... per gross, $8·00 .... 11·50
With Tubes .... " 10·50 .... 14·00

Stamped Square Pans.
No .... ½
Per gross .... $7·50 .... 14·50

Common Square Pans (One Sheet).
Per gross .... $11·50

Milk Skimmers (Plain or Pierced).
Per gross .... $4·00

Lettered Plates.
Inch 5¾ 6
Per gross .... $3·25 .... 4·00

Steamer Bottoms.
Add $1 per gross, or 10c. per doz. to list of Pot Covers.

Tin Stove Pipe Rings.

Inch	4	4½	5	5½	6	7
Plain .... per gro.	$4·00	4·50	5·00	5·50	6·00	7·00
Jap'd or Burn'd	6·00	6·50	7·00	8·00	9·50	10·00

Coffee Boiler Lips.
Small. Large.
To Rivet .... per gross, $0·80 .... 1·10
To Solder .... " 1·25

DEEP STAMPED AND RETINNNED WARE, dis 25 %

Plain Stamped Water Dippers.

	½ pint.	Pint.	Quart.	quarts.	2½ quarts.
Per doz	·90	1·15	1·50	1·85	2·50

Retinned Milk Pans.

Qts	½	1	1½	2	3	4	5	6	8	10	12
℔ doz.	1·20	1·50	1·75	2·00	2·25	3·15	3·50	3·85	4·75	5·25	5·75

Dipper Bowls, Plain Stamped—
Pints .... ½ 1 .... Quarts 1 2 2½
Per doz. ·50 ·75 .... Per doz .... 1·00 1·25 1·75
Dipper Bowls, Retinned—
Pints .... ½ ¾ 1 .... Quarts 1 2 2½
Per doz. ·75 ·95 1·05 .... Per doz .... 1·40 1·75 2·25

Pans.
Dish Pans, Retinned Deep—

Quarts	7	8	10	14	17	21	30
Per doz	8·50	9·50	11·00	13·00	16·00	19·00	30·00

JAPANNED TIN WARE, dis 5 %.
Cannisters, Common .... Pound ½ 1 2 3
Per gross $10·50 15·00 24·00 30·00
Canisters, Hinged .... Pound 1 1½ 2 3 4
Per gross $19·00 25·00 32·00 37·00 42·00
Canisters, Square .... Pound 2 4 6 8 12 16
Per doz $3·00 4·25 5·00 5·75 8·00 9·00
Candlesticks, Japanned .... No. 1 2
Per gross $6·00 7·00
Cake Boxes, Round .... per nest, $3·25
" Square .... per nest, 4·25
Chamber Pails, Japanned
Nos 2 3 4 5
Green, per doz .... $8·00 9·00 11·00 13·0
Oak " .... $9·00 11·00 12·00 13·50
Dust Pans, Corrugated .... per gross, $22·00
Box Graters .... per gross, $3·75
Molasses Cups .... Pint ½ 1 2 4
Per gross $18·00 16·00 28 00 42·00
Lunch Boxes, per doz .... 7 in. $2·00; 8 in. $2 50
Pepper Boxes Japanned .... ℔ gross small, $3·00; large, $4·00
Toy Banks, House .... No. 1 2
Per gross $7·00 5·50
Toy Banks, Gothic .... No. 1, $6·00, No. 2, 4·00 per gross
Toy Cups, Straight .... No. 1 2 3
Per gross $3·75 3·25 2·75
Toy Cups, Flaring .... No. 1, $4·25; 2, $3·75 ℔ gross
Toy Pails, Covered .... No. 1, per gross $4·00
Toy Rattles .... per gross, $2·00
Trunks, Wire Handled .... per nest (5) $1·75
Spittoons, Tin .... per gross, $27

PLANISHED TIN WARE, dis 25 @ 30 %.
Planished Coffee Pots, Round.

Each	·60	·75	·85	·95	1·15	1·25	1·30	1·40
Pints	1	2	3	4	5	6	7	8

Planished Tea Pots, Round.

Each	·70	·80	·95	1·05	1·25
Pints	2	3	4	5	6

Planished Tea Pots, Oval.

Each	·70	·80	·90	1·05	1·15	1·40	1·75
Pints	1	2	3	4	5	6	8

Planished Pepper Boxes, No. 1 .... per doz., $1·52
Planished Flour Dredges, No. 3, $2·10; 4, 2·45 ℔ dozen.

Planished Round Coffee Biggins.

Pints	2	3	4	5	6	8
Each	$1·00	1·10	1·20	1·40	1·60	2·00

Planished Oval Coffee Biggins.

Pints	2	3	4	5	6	8
Each	$1·15	1·25	1·40	1·60	1·80	2·25

Planished Oval Chafing Dishes, Imperial Covers.

Inch	10	12	14	16	18	20	22	24
Each	$3·85	5·00	6·25	7·60	9·00	11·50	15·00	16·50

Planished Oval Chafing Dishes, Low Covers.

Inch	10	12	14	16	18	20
Each	$3·25	4·35	5·20	6·20	7·80	9·25

Planished Low Dish Covers.

Inch	10	11	12	14	16	18	20
Each	$ ·70	·80	1·00	1·25	1·50	2·00	2·75

Planished Imperial Dish Covers.

Inch	10	11	12	14	16	18	20	22	24
Each	$1·55	1·70	2·00	2·50	3·15	3·45	4·60	5·45	6·30

Planished Etnas, on Stands.

Pints	1½		3	4	5
Each	$0·80	1·00	1·20	1·50	1·75

Planished Liquor Mixers .... Nos. 0 1 2
Per doz $2·00 2·18 2·45

Planished Oval Melon Molds.

Nos	2	3	4	5	6	7	8	9
Each	$·60	·65	·70	·80	·90	1·00	1·15	1·35

Planished Oval Tumbler Warmers.
To fit 1, 2, 3, and 4 O. G. Urns .... each, $2·50
Planished Oval O. G. Urns.

Nos	0	1	2	3	4	5	6	7	8
Each	$4·90	5·45	6·30	7·00	7·75	9·25	11·25	12·50	15·50

Planished Round Urns.

Nos	0	1	2	3	4	5	6	7
Each	$4·20	4·85	5·45	6·30	7·75	9·00	11·00	14·25

Planished Round Oyster Dishes, (Complete) .... Nos. 1 2
Each $2·10 2·80
Planished Oyster Dish Plates .... Nos. 1 2
Each $0·25 0·30
Oyster Dish Covers .... Nos. 1 2
Each $0·30 0·35

Tea Pot Handles—P. S. & W .... dis 20 %
Stow's Patent Hollow Tea Pot Handles.
No. 1, Small 4½ inches .... per gross, $11·50
No. 2, Medium, 5¾ " .... " 12·50
No. 3, Large, 6½ " .... " 13·50
No. 4, Ex. Large 7½ in., for Wash Pitchers &c .... " 18·00
Solid Iron, Tin Tipped.
No. 10, Small, 4¾ inches .... per gross, $9·00
No. 15, Medium, 5½ " .... " 9·50
No. 20, Large, 6½ " .... " 10·75
Stow's Patent Hollow Tea Pot Handles, Adamantine Bronze—P. S. & W.
No. 12, Bronzed and Tin-Tipped .... per gross, $13·50
Saucepan Handles, Of Best Malleable Iron.
P. S. & W .... dis 20 %
Japanned.
No. 1, 5½ inches long .... per gross, $3·50
No. 2, 6 " .... " 3·75
No. 3, 6½ " .... " 4·00
No. 4, 7½ " .... " 4·25
No. 5, 8 " .... " 4·50
No. 6, 9 " .... " 4·75
Tinned.
No. 1, 5½ inches long .... per gross, $4·25
No. 2, 6 " .... " 4·50
No. 3, 6½ " .... " 4·75
No. 4, 7½ " .... " 5·25
No. 5, 8 " .... " 5·50
No. 6, 9 " .... " 5·75
Japanned .... per lb., ·16
Tinned .... " ·20
Iron Kettle Ears (P., S. & W.) .... dis 45 %
Half gross pairs in a package.
Tinned.

Nos	1	2	3	4	5	6	7
Per gross pairs	·88c	$1·00	1·50	1·75	2·10	2·75	3·75	4·50

Black.

Nos	1	2	3	4	5	6	7	8
Per gross pairs	·75c	88c	$1·35	1·50	1·75	2·45	2·75	4·00

Tinned Tea Kettle Ears.
Nos 4 5 6
Per gross pairs .... $1·75 2·10 2·75
Extra Heavy Tinned Kettle Ears—French Pattern.
Nos 1 2 3 4 5 6 7
Per gross pairs .... 1·00 1·25 1·50 1·75 2·00 2·50 3·00
Malleable Iron Kettle Ears for Coal Hods &c.
P., S. & W .... dis 20 %
No. 10 Small .... ℔ ℔. Tinned 21c; Black, 16c
No. 20 Medium .... ℔ ℔, " 20c; " 16c
No. 30 Large .... ℔ ℔, " 20c; " 16c
No. 40 Extra Large .... ℔ ℔, " 20c; " 16c
In cases of 100 lbs. each.
Milk Can or Boiler Handles—(P. S. & W.) 4½ in. dis 25 %
Plain, 8c.; Jap'n'd, 9c.; Tinned, 15c. per lb.; Malleable Clips or Ears to match, Tinned .... 20c per lb.
Toilet Ware Handles—4½ inches (P. S. & W.) .... dis 35 %
Plain with drilled holes, per lb 9c
Plain with Cast " 8c
Plumbers' Scrapers—(P. S. & W) .... dis 25 %
Extra quality, length 6 in., per doz .... $4·00

METALS.

IRON.—DUTY Bars, 1 to 1½ cents per lb., Sheet, Band, Hoop and Scroll, 1½ to 1¾ cents per lb. Provided, that none of the above Iron shall pay a less rate of duty than 35 per cent. Pig, $7 per ton; Polished Sheets, 3 cents per lb.; Wrought Scrap, $8 per ton; Cast Scrap, $6 per ton. All subject to a reduction of 10 per cent. Railroad, 70 cents per 100 lbs. Boiler and Plate, 1½ cents per lb.

Pig Iron—AMERICAN.
Foundry No. 1 .... ℔ ton, $27 00 @ 28 00
Foundry No. 2 .... " 25 00 @ 26 00
Gray Forge .... " 23 00 @ 27 00
White and Mottled ....

SCOTCH.
Coltness .... " 37 00 @ 38 00
Glengarnock .... " 36 00 @ 37 00
Eglinton .... " 33 50 @ 34 00

Bar Iron.
Am. Refined, at mill .... nominal ....

Rails.
Welsh, gold .... ℔ ton,
American, at works, currency .... " 48 00 @ 53 00
Old Rails .... 26 00 @ 27 00

Scrap.
Wrought Scrap .... 34 00 @ 35 00

Bar Iron from Store.
Common Iron.
¾ to 2 in. round and square } ℔ ton $60 00 @ 62 50
1 to 6 in. x ⅜ to 1 in. }
Refined Iron.
¾ to 2 in. round and square } " 62 50 @ 65 00
1 to 6 in. x ⅜ to 1 in. }
1 to 6 in. x ¼ and 3-16 .... " 67 50 @ 70 00
Shafting Iron—2½ to 4 in .... " 75 00 @ 90 0
Rods—3-16 to ⅜ round and square .... " 67 50 @ 110 00
Bands .... " 80 00 @ 82 50
Hoops—⅝ to 2 in .... " 90 00 @ 135 00
Swedish Iron.
Ordinary sizes .... " 130 00 @ 132 50
Plow size .... " 142 50 @ 145 0

Sheet Iron.

	Common American and English.	R. G. American.	R. G. English.
Nos. 10 to 20 .... ℔ ℔	4½	5¼c	5¼c
21 to 24 .... "	4½ @ 4¾c	5¼c	5½c
25 to 26 .... "	4¾c	5¾c	5¾c
27	5c	5¾c	6c
28 .... "	5½c	5¾c	6½c

Galvanized, 1 to 20, prime, ℔ ℔ 9; 2d quality .... ℔ ℔ 8c
" 21 to 24 " " 10 " .... " 9c
" 25 to 26 " " 11 " .... " 10c
" 27 " " 12 " .... " 11c
" 28 " " 13 " .... " 12c
Patent Polished .... ℔ 15c
Russia, Nos. 8 to 16 .... " 17½c
" Stained. No. 1 .... " 16¼c
Belgian .... " 10c
One piece Corrugated Sheet Iron Elbows.

CHARCOAL IRON

¾	5	5½	6	7 inch.
$2·50	3·50	4·50	5·25	6·50 per doz.

RUSSIA IRON.

4½	5	5½	6	7 inch.
$5·00	7·00	9·50	12·00	14·00 per doz.

COPPER—DUTY Pig, Bar and Ingot, 5c.; old copper, 4 cents ℔ ℔; Manufactured (including all articles of which copper is a component of chief value) 45 % ad valorem. All subject to a reduction of 10 per cent.
American Ingot .... ℔ ℔ 22 @ 22½c
English " ....

SHEATHING, BRAZIERS' COPPER, BOLTS, &C.
Braziers Copper, ordinary sizes, over 16 oz., per square foot .... 33c ℔ ℔
Braziers' Copper, ordinary sizes, 16 oz. and over 12 oz., per square foot .... 35c. "
Braziers' Copper, 12 oz. per square foot and lighter .... 39c. "
Circles less than 34 inch in diameter .... 35c ℔ ℔
Circles, 34 inch diameter and over .... 39c. "
Segment and Pattern Sheets .... 35c. "
Locomotive Fire Box Sheets .... 33c. "
Sheathing Copper, over 12 oz. per sq. ft .... 31c. "
" " 12 oz. ℔ sq. ft. and lighter .... 39c. "
Bolt Copper .... 33c. "
Copper Bottoms, 32 c. ℔ ℔ .... net
No Copper is Sheathing except 14x48 inches, and not to exceed 34 oz. to the square foot.

O'NEILL'S PATENT PLANISHED COPPER.
14x48.
14 and 16 oz. and heavier .... 36c. By the case, c. ℔ ℔
12 oz. and lighter .... 39c. " " 38c. "
Boiler Sizes.
7 in., 14x52. 8 in., 14x56. 9 in., 14x60
14 and 16 oz. and heavier .... 38c. By the case, 37c. ℔ ℔
(And all sizes not over 20 inches wide.)
30x60
14 and 16 oz. and heavier .... 40c. ℔ ℔
12 oz .... 43c. "

TINNING.
14x48, by the case .... 8c. ℔ sheet
14x48, less than case .... 10c. "
Boiler Sizes, 7 and 8 inch .... 12c. "
" 9 inch .... 15c. "
Other sizes not larger than 30x60 .... 2¼c. ℔ sq.
Larger than 30x60 .... 5c.

LEAD—DUTY Pig $2 per 100 lbs.; old Lead, 1½ cent per lb.; Pipe and Sheet, 2½ cents per lb. All subject to a reduction of 10 per cent.
Spanish .... 6⅞ @ 7c gold
German Refined .... 6⅞ @ 6¾c gold
English .... 6¾c. gold
American .... 6⅞ @ 6¾c gold
Bar .... dis 10 % .... 8¼c.
Pipe .... dis 10 % .... 8¾c.
Tin Lined Pipe .... dis 10 % .... 16½c.
Sheet .... dis 10 % .... 8¾c.
Shot .... dis 10 %. Drop, 9c. Buck, 9½c.

BABBITT METAL.
N. P. U .... ℔ ℔ 8¾ @ 9c
A, 25c.; B, 20c.; C, 15c.; D, 12c., ℔ ℔.

SOLDER .... No. 1, 15c; No. 2, 13½ @ 14c

STEEL—DUTY: Bars, Ingots, Sheets and Coils, valued at 7 cents per lb., or under, 2½ cents; over 7 cents, and not above 11, 3 cents per lb.; over 11, 3½ cents per lb. and 10 % ad val. Railway Bars 1½ cents per lb. Railway Bars, in part Steel, 1 cent per lb. All subject to a reduction of 10 per cent. Provided, that Metal cemented, cast or made from Iron by the Bessemer or pneumatic process, whatever form or description shall be classed as

American Cast Steel.
Tool .... 15 @ 16c
Spring 10c
Homogeneous 13½c
Tire .... 12½ @ 13½c
Machinery (round and square) .... 10 @ 11c
File 11c
Sheet .... 14 @ 16c
Saw Plate, mill and mulay .... 14 @ 16½c
Saw Plate, gang and X cut .... 13 @ 14c
" circular as to size .... 18 @ 30c

Chrome Steel.
Tool .... ℔ ℔ 20 @ 21c
Tool, extra fine .... " 40 @ 75c
Spring .... ℔ ℔ 12c and upward
Machinery .... ℔ ℔ 14c
Hammer .... " 15c,
Gun or Homogeneous .... " 16c

English Steel.—payable in gold, dis 5 % cash.
" Best Cast .... ℔ ℔ 18c
" Extra Cast .... " 19c
" Round Machinery, Cast .... " 11½c
" Swaged, Cast .... " 18c
" Best Double Shear .... " 18c
" Blister, 1st quality .... " 13½c
" " 2d quality .... " 11½c
" " 3d quality .... " 10½c
German Steel, Best .... " 11½c
do 2d quality .... " 10½c
Sheet Cast Steel, 1st quality .... " 18c
" " 2d quality .... " 16c
" " 3d quality .... " 14c
File Steel, Flat and ½ Round .... " 12½c
" Square and Round .... " 13c
" Mill .... " 13½c
" Taper to 4 inch .... " 17c
" Taper 3 and 3½ inch .... " 18c

SPELTER—DUTY: In Pigs, Bars and Plates, $1 50 per 100 lbs.—less 10 per cent.
Silesian, cash .... 6¾ @ 7c., gold
American " .... 6¾ @ 11c., currency

TIN—DUTY: Plates, Sheets, Tagger and Terne, 15 per cent. ad val.; Electro-galvanized Plates, 2 cents per ℔; Manufactures of, not enumerated, 35 per cent. ad val. —all subject to a reduction of 10 per cent. Bars, Block and Pigs, free. Banca, subject to duty of 10 per cent
Banca .... ℔ ℔ 26c., gold
Straits .... ℔ ℔ 22½c., gold
English .... ℔ ℔ 22c., gold

CHARCOAL TIN PLATE.
I C 10x14, Prime Charcoal .... 11·50 @ 11·75
12x12, " .... 11·75
14x20, " .... 12·00
I X 10x14, " .... 13·50
12x12, " .... 14·00
14x20, " .... 14·50
D C 12½x17 " .... 10·75
D X 12½x17 " .... 13·00
For each additional X add .... 2·25

COKE TIN PLATE.

	Best	2d Quality.	Ordinary.
I C 10x14	$10·25 @ 10·75	9·50 @ 10·00	9·25 @ 9·75
I C 12x12	10·50 @ 10·75	10·00	9·25 @ 9·50
I C 14x20	10·50 @ 11·00	10·50	9·25 @ 9·50

TERNE PLATE.

	Prime Char.	2d qual.	Coke.
I C 14x20	$10·25	9·25 @ 9·75	8·25 @ 9·00
I X 14x20	12·25		
I C 20x28	21·00 @ 21·50	19·50 @ 20·00	16·50 @ 18·00
I X 20x28	26·00		
I C 10x20 ft.	22·50		

ZINC.—DUTY: Pig or Block, $1 50 per 100 lbs. Sheet 2½c. ℔ ℔. All subject to a reduction of 10 per cent.
Sheet .... cask 10½c
" .... open 10¾c

Paper Stock, Old Metals, &c.

(Dealers' Selling Prices.)
Canvas linen .... 4½ @
" cotton, No. 1 .... 6¾ @ 7
" " No. 2 .... @ 5
White linen rags, No. 1 .... 6 @ 6½
" " No. 2 .... 4¾ @
Colored .... 2½ @
Mixed woolens .... @ 2½
Soft woolens .... @ 6½
Gunny bagging .... 1¾ @ 2
Jute Butts .... 2½ @ 3½
Kentucky bagging .... 5½ @ 5¾
Book stock .... 4 @ 4½
Waste paper and scraps .... 1 @ 1½
Rope cuttings .... 1½ @ 3
Kentucky Bale rope .... 4 @ 4½
Oakum junk, No. 1 .... 5½ @ 5¾
" No. 2 .... @ 4
Grass rope .... 3½ @ 3½
Tarred Shaking .... 1½ @
White Collar Cuttings, all paper .... 7 @
" muslin lined .... 5 @
" Envelope .... 7 @
Hard White Shavings, No. 1 .... 6½ @
Soft " " No. 1 .... 6 @
White Shavings, No. 2 .... 5½ @ 6
Mixed Shavings, part white .... 4 @ 4½
Imperfections, No. 2, best folded sheets .... 5 @
" 1, Heavy Stock .... 4¾ @
Book Stock, Mixed .... 3½ @
" No. 2, light .... 2 @ ½
Prints .... 1½ @ 2
Pure Manilas 2
Bogus Manilas and Hardwares .... 1 @ 1½
Commons .... 1 @
Binders' Board Cuttings .... 1½ @ 2
Straw Board Cuttings .... 1½ @ 1¾

Old Metal.
Copper .... @ 20
Yellow metal .... 14 @ 15
Brass .... 13 @ 14
Heavy Composition .... 17 @ 18
Old lead, solid .... 6 @ 6¼
Tea lead 5
Wrought iron .... 1½ @ 1¾
Sheet iron .... 0¾ @
Cast iron .... 1 @ 1¼
Machinery iron .... 1¼ @
Zinc .... 5 @ 5¼
Pewter, No. 1 17
" No. 2 .... 10 @ 12
Spelter .... 5½ @ 6

Paints, Oils, etc.

Paints.
Black, lamp—Coach Painters .... ℔ ℔ 20c
" Ordinary 6c
" Ivory Drop, fair 15c
" best 26c
Black Paint, in oil .... kegs, 8c.; ass't'd cans, 11 c
Blue, Prussian, fair to best .... 50 @ 75c
" " in oil .... 35 @ 65c
" Chinese, dry 83c
" Ultramarine .... 25 @ 30c
Brown, Spanish 1½c
" Van Dyke 9c
Carmine, 40 .... $12 00
Green, Chrome .... 15 @ 28c
" " in oil .... 18 @ 25c
" Paris .... good, 30c; best, 40c
" " in oil .... " 30c " 45c
Mineral Paints .... 1½ @ 4c
Orange Mineral 14½c
Red Lead, American 9½c
" " English 10½c
" Venetian (N. C.) dry 2½c
" " in oil .... ass't'd cans, 11c; kegs, 8½c
" Indian, dry 10c
Rose Pink 13c
Sienna, American, Raw 4c
" Burnt 4½c
" " in oil .... 16 @ 26c
" Raw " .... 15 @ 25c
Umber, Burnt .... 4 @ 8c
" " in oil .... 16 @ 21c
" Raw .... 3½ @ 7½c
" " in oil .... 16 @ 22c
Vermillion, Chinese ....
" English .... 1 9½, gold
" Trieste .... 1 65 "
" American, Common 23c
White Lead, American, pure dry ....
" " in oil 10c
White, Paris, English, prime 11c
" .... in bbls. 2¼ @ ..c
Yellow Ochre, French .... 2½ @ 2¾c
" " in oil .... ass't'd cans, 11c; kegs, 8½c
" Vermont .... in casks 1½c
" Chrome .... 17 @ 27c
" " in oil .... 18 @ 28c
Zinc White, American No. 1 dry 9c
" 1, in oil 11c
" French (Paris) .... 11 c
" " in oil .... 12 c

Oils.
Linseed Raw .... ℔ gal. casks, 78c. bbls, 80c
" Boiled .... " 81c. " 85c
Whale, Crude ....
" Bleached Winter ....
Sperm, Crude .... " 1·65
" Winter unbleached .... " 1·85
" " Bleached .... " 1·90
Seal, Extra Refined ....
Lard, Pure Winter .... " 1·18
" Spring .... " 1·10
Cotton Seed, Crude 60c
" Southern Yellow 65c
" White ....
Neatsfoot, Winter .... 70c @ $1·10
Natural Lubricating .... 38c @ 40c

Sundries.
Asphaltum 9c
Benzine .... ℔ gal. 16c
Chalk 1½c
" Block ....
Dryer, Patent, Am'n .... ass't cans, 10½c.; kegs 9c
" English .... 11c.; " 9c
Flocks 50c
Frostings .... 33 @ 47c
Glue, White 30c
" Sheet ....
Glaziers' Points, Zinc 9c
Gum, Copal 56c
" Damar 28c
" Shellac, English 66c
" " dark 75c
Litharge 10c
Pumice Stone, selected Lumps .... 4 @ 6c
" powdered 4c
Putty in bladders 3½c
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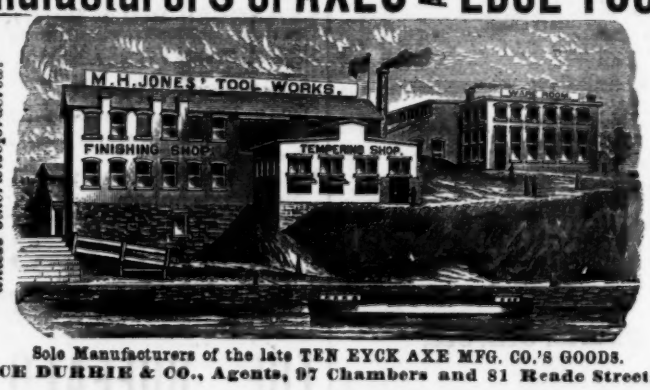

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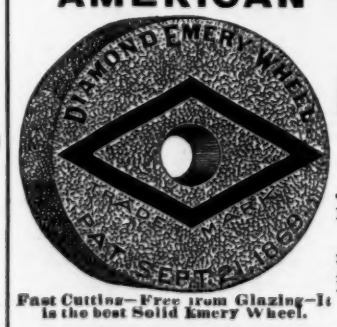

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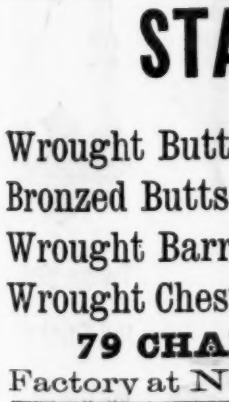

This cut shows the Snap pressed partly open.

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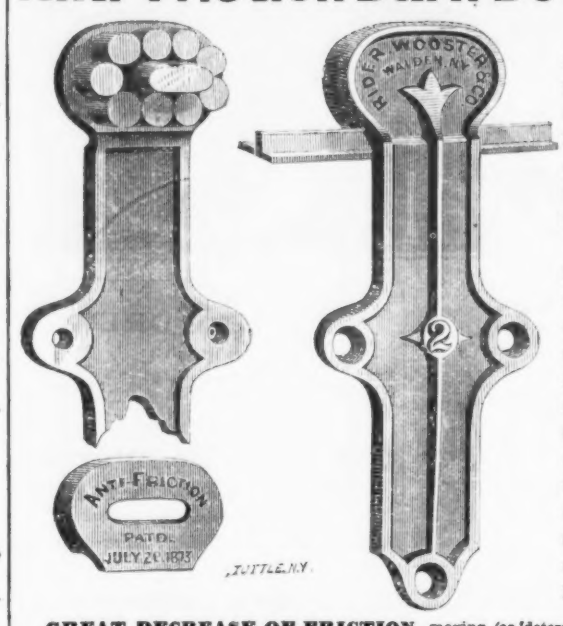

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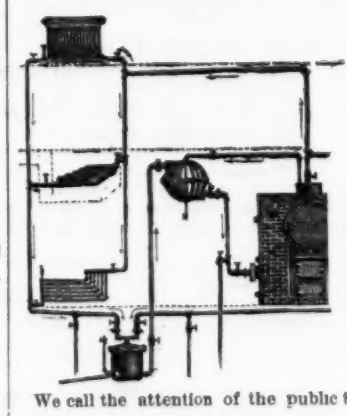

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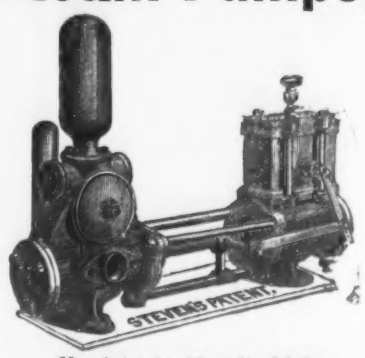

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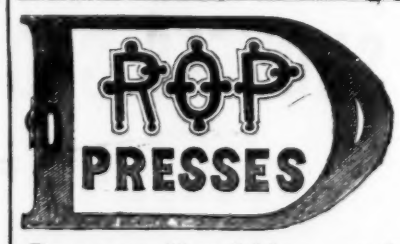

Bennett Hotchkiss and N. C. Stiles' Patent.

This Drop (which has been illustrated in this journal of that class in which the Hammer is raised by a stiff belt or board passing up between two friction rolls, and is so well known that we will only describe our improvements. The patents we are working under are those of BENNETT HOTCHKISS (who in an Interference case with Goulding and Cheney was declared the first inventor) and N. C STILES. Our improvements consist:

First.—Of an arrangement of parts that makes it the most complete Jobbing Hammer, and will take the place, to a great extent, of all other kinds for forging. In addition to the upright rod, which is operated by the hammer to open and close the rolls, we place another rod the lower end of which is secured to the end of a lever which is operated by the hand or foot, which operation also opens and closes the rolls at will. The lower end of this rod has a slot, so that the action of the hammer will not disturb the hand lever, thereby preventing the hand being injured, as otherwise would be the case.

Second.—No dog is used on the upright to hold up the hammer. The belt or board passes up between two clamps situated under the rolls, so arranged that as the hammer ascends they will freely open of themselves, but on descending they will close and hold up the hammer. To let the hammer fall the clamps are opened by pressure upon the foot treadle.

Third.—The board or belt is secured to the hammer by an elastic connection, which prevents the sudden jar and destruction of the same. The back roll is made adjustable to different thicknesses of board or belt, as also are the clamps. An adjustable collar on the upright rod allows the operator to obtain *any hight* of blow desired automatically. If one blow is wanted, press upon the treadle and remove the pressure as soon as the blow is given. Keep the foot upon the treadle and the blows will be repeated until the pressure is removed. If a blow of less hight than the collar is set for is required, work the hand lever, which will give you any hight of blow desired. The hammer can be held up at any point below the collar by bringing the hand lever into action when the hammer is at the desired hight, so that the next blow can be given from a state of rest, of less hight than the collar is set for. This is a feature no other drop has; that is, the first blow struck can be of less hight than the second or third, and obtained from a state of rest. A gentle pressure upon the treadle will allow the hammer to go down slowly, but it will stop and remain suspended at any point as soon as the pressure is removed.

The clamps in holding up the hammer keep the board from touching either roll and prevents the same from being worn uneven.

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Douglass' & Ives' Augers.....dis 30&10 %
Watrous' Ship Augers.....dis 10 %
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Packus.....dis50 %
Bartholomew's American Ball.....dis 10&10 %
Spofford.....dis 40 @ 40&5 %
Butts.—Cast Fast Joint, Narrow.....dis 50 %
" " Broad.....dis 50&5 %
Cast Fast Loose Joint.....dis 60&5 %
" Acorn. Loose Pin.....dis 55&5 %
Wrought Loose Pin.....dis 35&10 %
" Table Hinges and Back Flaps.....dis 30&10 %
" Narrow.....dis 30&10 %
" Loose Joint.....dis 35&10 %
" Reversible.....dis 35&10 %
Parker's Blind Butts, Sheperd's, Clark's, Lull & Porter's } Discount 50&10 % by the case
Cherrytree Blind Butts.....dis 60 %
Garretson " .....dis 60 %
Clark's Mortise Blind Hinges.....dis 40 %
Chains.—German Halter.....dis 15 @ 20 %
" Coil.....dis 15 @ 20 %
Galvanized Pump.....₩ ℔ 15c
Best Proof Coil Chains—

₩ ℔...	13½	10½	9½	9	8¾	8½	8c gold
	3-16	¼	5-16	⅜	7-16	½	⅝ in.

By the cask, 560 lbs., discount ½c per lb. Common Chain, ½c per lb. less than proof.
Chisels.—Socket Framing.....dis 60 @ 60&10 %
Socket Firmer.....dis 60 @ 60&10 %
" Tang.....dis 40 @ 40&10 %
Beate's Framing and Firmer.....dis 2 %
Casters.—Porcelain Wheel.....dis 40&10 %
Iron and Brass Wheels.....dis 30&10 %
Iron Bed.....dis 30&10 %
Clothes Wringers.—Universal.....per doz $64 00
Novelty..... " 64 00
Discount on 2 dozen lots, $2 per dozen.
Coffee Mills.—Common Box and Side.....dis 15 %
Patent Box and Side.....dis 15 %
Cutlery.—American Pocket (best).....dis 25 %
Landers, Frary & Clark, J. Russell & Co. and Lamson & Goodnow Mfg. Co. Manufacturers' net prices.
Drawing Knives.—Hart Mfg. Co.'s.....dis 60 @ 60&10 %
Concave Adjustable Handle.....dis 10 %
Beatty.....dis 10 @ 15 %
Fry Pans.

Tinned								
₩ doz.	$3 50	4 00	4 50	5 00	5 50	6 50	7 50	9 00 10 00
No.	0	1	2	3	4	5	6	7 8
Burnished								
₩ doz.	$ 3 00	3 75	4 25	4 75	5 25	6 00	7 00	8 00 9 00
No.	0	1	2	3	4	5	6	7 8

Files.
Nicholson Mill Files.....new list
" Bastard.....
" Taper.....
Butcher's Mill.....$5 00 to £ gold
" Bastard.....5 00 to £ gold
" Taper.....5 00 to £ gold
Fluting Machines.
E. F. M.—4⅛ in. rolls, $5 50.....dis 10 %
" —6 in. rolls, $6 65.....dis 10 %
Mrs Knox—4 in. rolls, $5 50.....dis 10 %
" —6 in. rolls, 6 65.....dis 10 %
Hammers.
Yerkes & Plumb's.....dis 15 %
Raymond & Son's.....dis 15 %
Varee.....dis 15 %
Hatchets.
Beatty's.....dis 15 @ 20 %
Shingling and Half. { ₩ doz. $7 00 7 50 7 75 8 00; No. 1 2 3 }
Yerkes & Plumb.....dis 15 %
Shingling and Half. { ₩ doz. $7 00 7 50 8 00 8 50; No. 1 2 3 4 }
Claw..... { ₩ doz. $7 50 8 00; No. 1 2 3 }
Hinges.—Strap and T.....dis 40&10 %
Lull & Porter's Blind.....dis 40&10 %
" " by the case dis 5 %
Clark's Mortise Blind.....dis 40 %
Horse Nails.

	Nos.	6	7	8	9	10
Ausable		27	25	24	23	22
Globe		28	26	25	24	23
Brandage		26	24	23	22	21
	Nos.	5	6	7	8	9 10
Putnam		32	28	26	25	24 22

On Ausable, Globe and Brandage 1000 ℔ lots.....dis 5 %
Knobs.—Door, Mortise and Rim.
Makes in Combination.....new list dis 45 %
Extra discount for cash 2 %
Mineral and Rim.....dis 5 %
Locks and Latches.—Rim and Mortise.....dis 45 %
Extra discount for cash 2 %
Till and Cupboard.....dis 25 %
American Padlocks.....dis 50 %
Scandinavian Pad Locks.

₩ doz.	$10 50	10 50	12 00	12 00	13 00	15 00	} dis 15 %
No.	9	9½	10	10½	11	11½	
₩ doz.	$18 00		18 00		22 00	22 00	} dis 15 %
No.	12		12½		13	13½	

Trunk Locks.....dis 5 @ 10 %
Thumb and Roggens Latches.....dis 25 %
Lanterns.—Square Candle and Oil.....dis 10 %
Globe for Oil.....dis 10 %
" Kerosene.....dis 10 %
Tubular Lanterns.....dis 10 %
Mattocks.—Long and Short Cutter.....dis 25 %
Western Pattern.....dis 25 %
Pennsylvania Pattern.....dis 15 %
Molasses Gates.
Enterprise Mfg. Co.'s Measuring Faucets.....dis 20 %
Stebbins' Gates.....dis 60 @ 60&10 %
Lincoln's " .....dis 40 @ 40&10 %
Landers, Frary & Clark's Petroleum...dis 10 @ 10&10 %
Taylor's Petroleum Faucets.....dis 20 @ 20&10 %
Brass Liquor Cocks.....dis 20&10 %
Meat Cutters.—Dixon's.....dis 15 %
Woodruff.....dis 15 %
Stowe.....dis 15 %
Hale's.....dis 25 %
Stuffers.....dis 10 %
Planes.—Auburn Tool Co., "Bench".....dis 40 %
Second Quality.....dis 50 %
Metallic Plane Co.....dis 33½ %
Evans Pat. Circular.....net
Plane Irons.—American.....list net
Butcher's.....gold £, $5 50
Picks.—Philadelphia.....net
Pittsburgh.....net
Plumbs and Levels.
Adjustable.....dis 60&10 %
Non-Adjustable.....dis 65&10 %
Rakes.—Cast Steel Garden.....dis 40 %
Malleable Garden.....dis 40 %
Wood Head Iron Teeth.....dis 40 %
Rules.—All Maker's Boxwood...dis 60&10 @ 80, 10&10 %
All Makers Ivory.....dis 50 %
Steelyards.—American Pattern.....dis 15 %

₩ doz.	$5 50	7 00	9 00	1 00	11 00	12 00
No.	50	100	150	200	250	300

English Pattern.....dis 15 %

₩ doz.	$7 00	8 67	10 67	12 67	14 67	16 67
No.	50	100	150	200	250	300

L. F. & C. Excelsior.....dis 10 %

₩ doz.	$9 00	10 00	12 00	15 00	18 00	21 00
No.	50	100	150	200	250	300

Scythes.—Golden Clipper, Damascus Blade. Boxed and Sharpened.....₩ doz. $10 50 net
Golden Clipper No. 10, Boxed and Sharp'd.₩ doz $10 50
Green " " " " 9 50
Common Scythes.....₩ doz $7 50 @ 9 00
Squares.—Steel and Iron, new list.....dis 50 %
Saws.—Disston's Cross Cut.....dis 15 %
Disston's Hand.....dis 12½ %
" McNiece's H'd, Cross-Cut & Circ'r, new list..dis 15 %
Boynton's Lightning, new list.....dis 40 %
" Champion.....dis 45 %
Shovels and Spades.
Rowland's Plain Back, Jan. 25d.....dis 25 %
" Back Strap " .....dis 25 %
Oliver Ames & Sons.....new list dis 12½ %
Brady Shovel Co.....dis 12½&5 %
Sad Irons.—Richmond (polished face).per lb. 3½c. net
Richmond (polished face)... by the cask " 3¾c. net
Stone.—Arkansas Oil, No. 1.....₩ ℔ $1 75
Turkey Oil, No. 1..... " 1 00
Washita Extra..... " 30c
" No. 1..... " 22c
" " 2..... " 18c
" " 3½c
Screws.—Iron.....new list, Jan. 1st, 1874, dis 52½ %
Brass.....dis 52½ %
Spoons.—
Plated.....dis 40 %
Britannia.....dis 50 %
German Silver.....dis 30 %
" Light.....new list dis 35 %
Lalance & Grosjean Iron.....dis 10 %
Springs.—Gray's Door.....dis 40 %
Torry's Door.....dis 40 %
Stocks and Dies.....dis 15 %
Stove Polish.—Gem.....₩ gross, $5 00
Onyx..... $5 00
Try Squares.—Winterbottom.....dis 10 @ 15 %
Stanley Rule and Level Co.....dis 45&10 %
Willis Thrall, No. 2.....dis 30&10 %
Disston's No. 2.....dis 40 %
Tacks, &c.—Half Weight Tacks.....dis 72½ %
" " by the case...dis 72½&7½ %
Clout and Finishing Nails.....7½ %
" " by the case.....dis 7½ %
Traps.—Genuine Oneida—Newhouse list.....dis 20 %
Imitation " " .....dis 30 %
Vises.—Solid Box.....c. ₩ ℔ net 15c
Wrenches.—Coes Genuine.....dis 40 @ 40&5 %
Coes Imitation Wrought Bar.....dis 50 %
" " Malleable Bar.....dis 60 "
" " (Kellogg) Malleable Bar.....dis 50 @ 10 %
Tafts Pattern (Wrought Bar).....65 %
" " Kellogg's (Nail Bar).....dis 65&10 %
Philadelphia Tool Co.'s Pat. Duplex.....dis 25 %
" " " Improved Baxter.....dis 25 %
" " " Adjustable Fork.....dis 25 %
Wire.—No. 0 to 18.....dis 45 %
No. 19 to 26.....dis 47½ %
No. 27 to 36.....dis 45 @ 47½ %
Coppered 0 to 12.....dis 15 @ 20 %
Tinned Broom Wire.....dis 25 %
Galvanized Wire No. 0 to 18.....dis 40 %

BUFFALO.

Reported by Messrs. Sidney Shepard & Co.

February 8, 1875.

Augers—Snell Mfg. Co.....dis 25 %
Bits, Auger—Snell Mfg. Co.....dis 25 %
Bells, Cow—Yaw's Genuine.....dis 30 %
Bolts—Carriage and Tire.....dis 75&10 %
Braces—Bit, Spofford's Patent.....dis 50&10 %
Brads, Cut.....dis 50&7½ %
Boards—Stove, Brooks' Patent.....dis 30 %
Butts—Brass.....dis 30 %
Wrought Narrow.....dis 30&10 %
" Broad, Loose Joint.....dis 35&10 %
" Table and Back Flaps.....dis 30&10 %
Wrought Butts, Loose Pin.....dis 35&10 %
Belting—Rubber.....dis 30 @ 35 %
Leather, new list, oak tanned.....dis 20 %
Brick—Bath (box of 2 doz) Best English.....$1 25
" Rutherford".....$1 00
Cases—Parlor Coal Hod.....dis 10 %
Chalk—White, Carpenter's.....₩ gross, 63c
Red, Carpenter's..... " 90c
Blue, " ..... " $1 17
Chisels—Firmer Socket.....dis 60&10 %
Framing Socket.....dis 60&10 %
Corner Socket Chisels.....dis 60&10 %
Slick's Carpenters'.....dis 60&10 %
Castings—Malleable.....₩ ℔ 10c
Clothes Wringers, "Novelty" No. 2.....₩ doz $65 00
Elbows—Corrugated..... 5 5½ 6 7
Charcoal..... $3 50 4 50 5 25 6 50 } dis 10 %
Russia..... 7 00 9 50 12 00 14 00 }
Files—Maschoss Bros.....dis 50 %
Fluters—Geneva Hand.....dis 7½ %
Freezers Ice Cream—"Champion".....₩ doz. $15 00
Hammers—Henry W. Kip's.....dis 7½ %
Hinges—Window Blind—
Clark's.....dis 55&10 %
Shepard's and Standard.....dis 55&10 %
Wrought Strap and T.....dis 35&10 %
Hods, Coal—Plain Black and Galvanized.....dis 10 %
Funnel, Black and Galvanized.....dis 10 %
Fancy and Helmet.....dis 10 %
Hooks and Staples—Wrought.....dis 70&10 %
Hooks—Belt.....dis 50&10 %
Hasps and Staples—Wrought.....dis 70&10 %
Sad Irons.....9¾c
Kettles—Brass.....₩ ℔. 45c
Enameled.....dis 50&10 %
Knives, Drawing—Oval No. 1.....dis 60&10 %
Razor Blade.....dis 50&10 %
Lanterns "Peerless."..... No. 4 5 10
₩ doz $26 00 $10 50 $13 75 dis 10 %
Tuomey " with Guards.....
Machines—Apple Paring, "Turn Table".....8 00 ₩ doz
Mills, Coffee—Box and Slide, common.....dis 15 %
Box Union and Eagle.....dis 15 %
" American.....dis 20 %
Nails—Clout and Finishing.....dis 7½ %
Shoe.....dis 7½ %
Horse, Ausable..... No. 5 7 8 9 10
20 27 25 24 23 22c
" " Pointed & Polished.....add 1c ₩ ℔
" " 1000 lbs.....dis 5 %
" Clinton..... No. 6 7 8 9 10
21 19 18 17 16c
Packing—Rubber.....dis 30 @ 35 %
Pencils, Slate—Soapstone..... 4 5 6in.
30 40 50c. ₩ 100
Case lots.....dis 20 %
Paint—White Lead, U. S. Gov't.....₩ ℔ 8½c
Rivets—Iron, Black and Tinned.....dis 25&7½ %
Rope—Manila, ½ inch and larger.....₩ ℔ 14½c
Sisal, ½ inch and larger.....11½c
Jute, all sizes.....9½c
Screws—"American Screw Co"—
Flat Head, Iron.....dis 52½ %
Flat Head, Brass.....dis 52½ %
Spoons, Iron Tinned.....dis 10 %
" by the case.....dis 20 %
Plated Rogers' A No. 1.....dis 40, 10&5 %
Britannia.....dis 45&10 %
Squares—Steel and Iron.....new list 50 %
Saws—Henry Disston & Sons.....dis 12½ %
Scales—Buffalo Scale Works.....dis 25 %
Fairbanks.....dis 15 %
Stove Polish—Gem.....₩ gross, $4 50
" Dixon's..... " 6 00
Trans. Steel—Newhouse.....dis 20 %
Tacks—Half Weight Am. Iron.....dis 72½&7½ %
Vases—Palace Coal.....dis 10 %
Vises—Parallel, Buffalo.....dis 25 %
Ware—French, Tinned and Iron.....dis 25 %
Stamped and Japanned.....dis 5 %
Cast Iron Hollow.....dis 35&5 %
Tin Plates.—Add for each X.....₩ box $1 00
10x14, IC. Charcoal.. $ 7 00 | 14x20 C. terne.....$11 00
12x12, " ... 12 00 | 20x28 C. " ... 22 75
12½x17, " ... 17 00 | 20x28 X. " ... 27 50
14x20, " ... 18 00 |
Pig Tin—Straits.....28c @ 29c
Bar Tin.....30c
Solder.....No. 1, 16½c; No. 2, 15½c
Sheet Zinc—
" Lasalle".....370 100 ℔ casks
$10 75 11 05 ₩ 100 ℔s
Sheets.....$11 25
Iron Wire—Bright and Annealed.....dis 40 %
Coppered.....dis 35 %
Tinned.....dis 15 %
Tinned Broom, { Nos. 20 21 22 / 20c 21c 21c } .....dis 25 %
Copper—Sheathing 14 @ 18 oz.....₩ ℔ 31c
Planished.....₩ ℔ 36c @ 38c
Bottoms.....₩ ℔ 32c
Bolts.....₩ ℔ 35c
Braziers' Sheets.....₩ ℔ 38c
Sheet Iron.—
16 Common.....$4 70
24 Common.....5 00
24 W. D. Wood & Co., Smooth Finish.....5 20
Am. Russia.....A... B...
14c 17c
Gen. Russia, No. 1 stained.....23c
" " clean.....19c
Galvanized.....dis 50 %

CINCINNATI.

Reported by Sellew & Co., Importers and Jobbers Metals, No. 214, 216 and 218 Main street.

Tin Plate.—I. C. 10x14 Charcoal.....$11 50 @ 12 00
I. X. 10x14 Charcoal.....14 50 @ 15 00
I. C. Terne 14x20.....10 00 @ 10 25
I. C. Terne 20x28.....21 50 @ 23 00
I. C. Continuous.....24 00
Block Tin.—
Pig.....₩ ℔ 27c @ 29c
Solder.—
S. & Co.....₩ ℔ 32c
Lead.—Pig.....₩ ℔ 7½c.
Copper.—
Ingot.....₩ ℔ @ 24c
Planished....." @ 36c
Sheathing....." @ 33c
Copper Drops @ 33c
Zinc. Cask, 500 to 1000 lbs.....₩ ℔ 10½ c
Case, 100 lbs..... " 11 c
Slab..... " 7½c
Brass.—
Roll, No. 6 to 20.₩ ℔ 30c
" 20 to 26. " 35c
Babbit Metal.—
Sellew & Co.....₩ ℔ 35c
Antimony.....₩ ℔ 17c
Bismuth.....₩ ℔ $4 00
Nickel.....₩ ℔ $3 50
Sheet Iron.—
Gen. Russia.....₩ ℔ 20c

	Com.	B.	Smooth Fin.	S.	I.	U.	Smooth D	Re'fd.
15 to 20		4·4c		5·5c				7·5c
22 to 24		4·6c		5·6c				7·6c
26		4·8c		5·8c				7·8c
27		5·0c		6·0c				8·0c

Bars.....₩ ℔ 31c
A 1.....₩ ℔ 19c
Roofing....." 17c
Bar.....₩ ℔ 8½c
Sheets, 6 to 9 lb.....₩ ℔ 38c
" 10 to 12 lb....." 36c
Braziers 18 lb....." 32c
Copper Bottoms....." 34c
Roll, No. 33 to 40.....₩ ℔ 50c
Wire, No. 0 to 20.....₩ ℔ 35c
" 20 to 28..... " 40c
Aliens'.....₩ ℔ 40c
Market....." 12c

Galvanized Iron.—Full bundles.....dis 20 %

Nos.			
Nos. 1s to 20	13c	No. 26	14c
22 to 24	13c	27	15c

Bar Steel.—Silver, ₩ ℔ 16c; Crescent, 21c.
Iron Wire.....dis 35 %
Enameled Ware.....dis 45 %
One Piece Corrugated Elbows.....dis 10 %

Charcoal Iron.		Russia Iron.	
4½ inch.....	₩ doz $2 50	4½ inch.....	₩ doz $6 00
5 "	" 3 50	5 "	" 7 00
5½ "	" 4 50	5½ "	" 9 50
6 "	" 5 25	6 "	" 12 00
7 "	" 6 50	7 "	" 14 00

Leader Elbows, Flat Crimp Retinned or Galvanized.—Dis. 10 %

	₩ doz.		₩ doz
2-inch	$1 75	2½-inch	$2 75
3-inch	2 25	3½-inch	3 25
4-inch	2 50	4½-inch	3 50

Sheet Iron Bread Pans.....₩ ℔ 10c
American Broilers.....₩ doz. $13 50
Tinmen's Machines.....dis 5 %
Sad Irons.....₩ ℔. 3½c
Brass Kettles.—Ansonia.....43c
Dog Irons.....3½c

PITTSBURGH.

The following are the Card rates of Lewis, Oliver & Phillips, H. B. Newhall, 11 Warren St., New York, Agent. Iron, standard list assorted sizes, for large orders, c, card rate, 2 % off net.
Flat Rail (1½x¼), punched and coun'sunk..4·4c ₩ ℔ net
Iron Wedges.....4½c ₩ ℔ net
Norway Nail Rods.....9¼c ₩ ℔ net
Crow Bars (in ordering please state whether "Wedge" or "Pinch" point).....5c ₩ ℔ net
Beetle Rings.....5½c ₩ ℔ net
Fence Pickets—
¾ round, bent to shape, 30c ₩ ft. of fence, less 15 % off net.
Discount off Standard List.
Carriage and Tire Bolts (new list).....70&10 % off net
Plow Bolts.....30, 10&5 % off net
Stove Bolts.....15 % off net
Machine and Square Head Bolts.....30&10 % off net
Coach and Lag Screws.....30&10 % off net
Bolt Ends.....35 % off net
Pat. Hot Pressed Square and Hexagon Nuts, small sizes, from 3-16 to ¾ in.....7½c ₩ ℔ off net
Pat. Hot Pressed Square and Hexagon Nuts, large sizes, from 7-16 to 2 in.....6 c ₩ ℔ off net
Washers, all made from new band iron, small sizes, from 3-16 to ⅜ in.....9 c ₩ ℔ off net
Washers, all made from new band iron, large sizes, from 7-16 to 1⅛ in.....7 c ₩ ℔ off net
Nuts and Washers in 25 lb. boxes, 1c ₩ ℔ ex. Nuts and Washers in lots less than one keg each size, 1c ₩ ℔ ex. Nuts and Washers in 5 lb. boxes, 1½c. ₩ ℔ ex.
Harrow Teeth, in lots of 1 ton or more, packed in casks, 1 in. diam. 3½c ₩ ℔ net; ⅞ ⅞ in. diam. 3¼c ₩ ℔ net; ⅞ in. diam. 4c ₩ ℔ net.
Patent Headed Harrow Teeth, packed in casks, ½c ₩ ℔ ex
Skein Bolts, in bulk, in lots of 1 keg or more, ⅝ in. diam. 5½c ₩ ℔ net; 9-16 in. diam. 6½c ₩ ℔ net; ½ in. diam. 7½c ₩ ℔ net. 1c ₩ ℔ extra when less than 1 keg of each size is ordered.
Screw Hook-and-Eye Hinges, ⅝ to 1 in. diam. 9c ₩ ℔ net; ⅝ in. diam. 10c ₩ ℔ net; ½ in. diam. 12 c ₩ ℔ net.
Screw and Strap Hinges, in lots of 100 pairs or more, 14 to 36 in. long, 5½c ₩ ℔ net; 8 to 12 in. long, 6½c ₩ ℔ net
Strap and T Hinges.....20 & 10 % off net, delivery as customary.
For purchases amounting to $250 between May 30th and December 31st, 5 % extra off.
Screw Hitching Rings.....$5 25 ₩ 100 net
Duck Nest Tuyere Irons.....$14 50 ₩ doz net
Cast Iron Washers.....₩ ℔ 4c net
Bridge and Roof Bolts—
1 to 2 in. diam. over 8 ft. long.....₩ ℔ 4 c net
1 to 2 in. diam. from 4 to 8 ft. long..... " 4½c net
1 to 2 in. diam. from 1½ to 4 ft. long..... " 4½c net
⅝, ¾ and ⅞ in. diam. over 4 ft. long..... " 4¾c net
⅝, ¾ and ⅞ in. diam. from 1½ to 4 ft. long " 5¼c net
Bridge bolts with upset ends.....¾c. ₩ ℔ extra
Wrought iron plates, punched.....3c. ₩ ℔ net

WAGON HARDWARE.

Wagon Box Strap Bolts—
10 in. long by 7-16 at Screw End, ₩ set of 8 bolts.. 55c
12 " ½ " " 8 " " 70c
10 " 9-16 " " 8 " " } 90c
12 " 9-16 " " 8 " "
14 " 9-16 " " 8 " " } $1 00
10 " ⅝ " " 8 " "
12 " ⅝ " " 8 " " } 1 00
14 " ⅝ " " 8 " "
16 " ⅝ " " 8 " " 1 10
1 20
5c ₩ set for each additional inch over 14 in. All lengths made.
In ordering Box Strap Bolts please give diameter at Screw End.
Wagon Box Rods, narrow track, each.....18c
" " wide track, each.....20c
Single Tree Irons, ₩ set of four pieces.....38c
Wrought Iron Bolster Plates, 2¾ in. wide, ₩ set.....60c
" " 3 " " " 65c
" " 3½ " " " 70c
" " 3½ " " " 75c
Wagon Brake Ratchets, each.....16½c
" " " finished with guard, each..45 c
Wrought Hammer Straps, heavy pattern, each.....16 c
" " " light " each.....13½c
" Rub Irons, each.....11 c
Stay Chain Hooks, each.....8 c
Double and Single Tree Clips, figure 1, each.....9 c
" " " " 2, each.....10 c
" " " " 3, each.....12 c
Strap Bolts, Rods, Single Tree Irons, Bolster Plates, Brake Ratchets, Hammer Straps, Rub Irons, Stay Chain Hooks and Clips, in lots of 50 sets.....dis 25 %
Wagon Box Staples, 1¾ to 2¼ in. to clinch. ₩ 1000 $11 00 net
" " " Bevel Box Iron, to rivet on. ₩ 1000 7 50 net
Neck Yoke Eyes, each.....4¾c net
" " with ⅜ rings, each.....7¾c net
King Bolts, ¾, 1, 1¼, and 1¼ in. diam.....₩ ℔ 4½c net
Wagon Rivets, ex. large, flat, oval and steeple head, ⅜ in. diam. all lengths.....8¼c net
Wagon Rivets, 3-16 in. diam., all lengths.....9¼c net
" " & Nails, in 5 ℔ paper boxes....₩ ℔ 1c extra
" " in 25 ℔ wood " .... ½c extra
Wagon and Hinge Nails, ¼ in.....₩ ℔ 17 c net
" " " 3-16 in..... " 19 c net
Double Tree Plates.....8¼c net
Coupling " .....8¼c net
Tongue " ..... " 9 c net
Neck Yoke Plates..... " 11 c net
Tongue Cap Iron, 1¾, 2 & 2¼ in. wide, same price ₩ ℔ as Band Iron.
Wagon Chains, Stay Lock and Tongue, 5-16 in. ₩ ℔ 10½c net. ¼ in., 11½c. net

DETROIT.

(Reported by Messrs. Jewett & Root.)

Tin Plate.—Best Charcoal

IC. 10x14	$12 00
IX. 10x14	14 75
XX. 10x14	17 50
IC. 12x12	12 00
IX. 12x12	15 25
IC. 14x20	14 00
IX. 14x20	16 75
XX. 14x20	18 50
XXX. 14x20	21 25
XXXX. 14x20	24 00
Do. 100 Plate	11 50
DX "	14 25
DXX "	17 00
DXXX "	19 75
DXXXX 100 Plate	22 50
IX. 14x14	24 00
IC. 10x14 W	11 00
IX. 10x14 W	13 75

Roofing Tin.—Best Char.

IC. Terne, 14x20	$11 00
IX. " 14x20	13 75
IC. Terne, 20x28	13 00
IX. " 20x28	26 00

Coke Tin.—

IC. 10x14 Coke	$10 25
IX. 10x14. Coke	13 00
IC. 14x20. "	11 25

Sheet Zinc.—
Any width.....11c

Copper.—
Sheathing.....32c
Copper Bottoms.....34c
Planished Copper.—
Sheathing, 14x48.....38c
Boiler Size, No. 7.....40c
" " No. 8.....40c
" " No. 9.....40c
Pig Tin.—
Large Pigs.....29c
Small Pigs.....29½c
Bars.....31c
Solder.—No. 1.....16c
No. 2.....15c
Bright Wire....dis 40 %
Sheet Iron.—
No. 18 Am. Com.....4 80
No. 24 Am. Com.....5 00
Patent Am. Russia "A" Nos. 24, 25 and 26...14c
Russia, No. 9, 10, 11&12.. 18c
W. D. WOOD'S & CO.'S SHEET IRON.—
Nos. 15 to 20 Smooth $6 10
" 21 to 24..... 6 30
" 25 & 26..... 6 60
" 21 to 24 Char'l.. 7 80
" 25 & 26 " .. 8 00

Steel.

THREE CLASS PRIZE MEDALS, CLASSES 1, 21, 22, First Exhibition of Industry LONDON, 1851

MEDAL OF HONOUR, SOCIETY OF ARTS & INDUSTRY, LONDON, 1856.

1st CLASS PRIZE MEDAL, CLASS 1st UNIVERSAL EXHIBITION OF INDUSTRY PARIS, 1855.

COCKER BROTHERS,

SUCCESSORS TO

SAML. COCKER & SON,

(Established 1752.)

SHEFFIELD, ENGLAND

MANUFACTURERS OF

CAST, SHEET, AND BLISTER STEEL, OF EVERY DESCRIPTION.

BEST CAST STEEL WIRE, ADAPTED SPECIALLY FOR MECHANICAL PURPOSES;

Also for ROPES, NEEDLES, FISH HOOKS, PINS, CRINOLINE, &c.

BEST CAST STEEL FILES, SAWS, EDGE TOOLS, HACKLES, GILLS, CARD CLOTHING, CARD TEETH, HACKLE AND GILL PINS, FISH HOOKS, NEEDLES. &c.

ALSO

GENERAL MERCHANTS.

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MOSS & GAMBLE **SUPERIOR C. S. "FULL WEIGHT" FILES,**

Cast Steel Hammers and Sledges. Also, "M. & G." Anvils and Vises.

WARRANTED CAST STEEL, especially adapted for DIES and TURNING TOOLS, DRILLS, COLD CHISELS, PUNCHES and all kinds of MACHINISTS' TOOLS.

Celebrated Improved Mild Centre Cast Steel, for Taps, Reamers, and Milling Tools, warranted not to crack in hardening Taps of any size.

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for Tools, Cutlery, Saws, Files, Augers, Gimblets, &c.; Sheet Cast Steel for SPRINGS AND STAMPING COLD;

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Unsurpassed, if equaled in quality.

Bailey Lane Works, Sheffield, England.

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In calling the attention of consumers of Steel in any of the parishes above enumerated, we would respectfully assure them of our ability to supply an article that cannot be excelled in quality, temper, and adaptation in all respects to the various purposes for which it may be required. Half a century of practical experience in all departments of Steel manufacture, a long established reputation in England, and the Continent of Europe, and in the Eastern States principally of this Country, encourage us to solicit a universal trial of our Steel for the above or other purposes for which a first class material in quality, temper, and durability is needed.

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Particular attention is paid to quality and temper for

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ALSO STEEL of superior quality for Turning Tools, Taps, Dies, Drills, &c.

Hot and Cold Rolled Sheets for Clock Springs, Corset Clasps, Pens, &c.

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CHROME CAST STEEL,

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Manufacturers of **Extra Quality Tool**

CAST STEEL,

Patent Rolled

SAW PLATES,

All descriptions of **Cast and German**

Spring and Plow Steel

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AXLES, STEEL TIRE,

Plow Wings, Shares, Cultivators, Reaper Bars, ow Bars, &c., &c.

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TIRE, TOE CORK, SLEIGH SHOE, BLISTER & PLOW STEEL.

Also, Plow and other Iron.

VAN WART & McCOY, Agents,

43 Chambers St., New York.

A full assortment of "Jenks" Spring Steel in stock.

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Manufacturers of all descript[illegible] of

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EQUAL TO ANY IN THE MARKET.

Office.....330 Liberty St.,

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Gunpowder.

GUNPOWDER

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DUPONT'S GUNPOWDER MILLS

ESTABLISHED IN 1801,

Have maintained their great reputation years. Manufacture the

Celebrated Eagle Ducking, Eagle Rifle and Diamond Grain Powder.

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LAFLIN & RAND POWDER CO.

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IN EVERY PART OF THE UNITED STATES from having agencies and magazines at all prominent points, beside our works at

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The superiority is well known of our brands Rifle Powder

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SAFETY-FUSE at wholesale.

CHICAGO.

(Reported by Frank Sturges & Co., 72, 74 & 76 Lake St.)

Tin Plate.—

10x14, IC, Ch'l. Good.	$	14x20, IX, Ch'l Best.	$15 50
10x14, IC, " Best.	12 00	14x20, IXX, " "	18 00
10x14 IX, " "	14 50	14x20, IXXX, " "	20 50
12x12, IC, " "	12 50	DC, 100 Plate, " "	12 00
12x12, IX, " "	15 00	DX, " "	14 50
14x20, IC, " "	13 00	DXX, " "	17 00
Roofing IC, Charcoal, Best		DXXX, " "	19 50
Roofing IX, Charcoal "			11 50
20x28, IC, Charcoal Roofing, Com			14 00
20x28, IC, "		Fair	22 00
20x28, IC, "		Best	22 50
20x28, IX, "			23 00
10x14, IC, Coke Plates			27 50
14x20, IC, "			10 00 @ 10 50
10x20, IC, "			11 00
			16 50

Block Tin.—

Large Pigs	30c	Bars	32c
Small	31c	Straits, 2c. higher.	

Zinc.—Sheet, 500 to 1000 lb. Casks 10¼c; Loose Sheets 10½c; Slab Zinc or Spelter 6¾ to 8c

Copper.—Bottoms 35c; Sheathing 33c; Planished 36c; Bolier lengths 40c; Ingot 24c to 26c; Bolt 30

Braziers' Sheets.—

30x60, 6 to 10 lbs.	₱ lb 41c	30x60, 15 to 100 lbs.	₱ lb 35c
30x60, 10 & 12 lbs.	" 38c		

Solder.—F. S. & Co.'s make.

Best Fine	22c	Roofing	18c
No. 1	20c	Braziers' or Sheit. Sold.	35c

Antimony 18c

Babbit Metal—F. S. & Co.'s 16c; No. 2 14c

Sheet Iron.—

	Common.	Smooth Com.	Smooth Charcoal.	Smooth Juniata.
No. 24	5 c	6 c	7½c	9½c
25 & 26	5½c	6¾c	7¾c	9¾c
27	5½c	6¾c	8 c	10 c

Galvanized Iron—dis 20 %

No. 16 to 20	12c	No. 27	15c
21 to 24	13c	28	16c
25 & 26	14c		

Russia Iron.—Perfect 20c | No. 1 Stained 19c; In Sheets, 1c. higher.

American Russia.—A 15c | B 10½c; In sheets, 1c higher.

Lead.—Pig 7½c; Bar 8¼c | Lead Pipe, in full coils 8¼c; Lead Pipe, when cut 9¼c; Sheet Lead 8¼c

Wire—Bright dis 35 %; Coppered dis 30 %

BOSTON.

(Reported by Macomber, Bigelow & Dowse, 156 to 164 Oliver St.)

Augers.—Watrous Ship dis 10 %; L'Hommedieu Ship dis 15 %

Axes.—Forester's Favorite, Bronzed $12 00; Blue Jackets, Blue 11 50; Excelsior, Black 11 00; Chopper's Prize, Bronzed 10 50; Red Cross, Red 10 00; Red Cross, Handled 12 50; Boy's Handled Blue Jackets 13 00

Axe Handles.—Wadleigh's Oak—A (Extra) $2 50, B (No. 1) $2 00, C (No. 2) $1 50 ₱ doz

Bells, Sleigh—Fancy Body, Patent Leather, Cloth Bound, White Metal, 30, No. 1 $1 70; Fancy Body, Patent Leather, Cloth Bound, White Metal, 26, No. 1 1 80; Fancy Body, Patent Leather, Leather Bound, Extra Tinned, 30, No. 1 2 38; Fancy Body, Patent Leather, Leather Bound, Extra Tinned, 36, No. 1 2 50; Fancy Body, Patent Leather, Leather Bound, Silver Plated, 30, No. 1 3 38; Fancy Body, Patent Leather, Leather Bound, Silver Plated, 36, No. 1 3 50; Shaft, Strap, White Metal, House Bells, extra, 6, No. 1 per pair, 50c.; Common, 6, No. 1 45c.

Bind Hinges.—O r or Washburn's per set $9 00

Band Fasts.—Orr or Washburn's per hundred set $6 00

Bolts.—Carriage, Phila., "Girard Works" dis 50&10 %

Borax.—Best Refined ₱ lb 14c

Borers.—Angle, Backus' dis 30 %

Boring Machines.—Angle each $4 75; Common, Snell's quality each 3 75

Braces.—Barber's dis 40&5 %; Backus' dis 50 %; Spofford's dis 50 %; Amlson dis 50 %

Brackets.—Star Bronzed dis 50&10 %; Star Japanned dis 60&10 %; Store shelf dis 35 %

Brass Faucets.—L. F. & C. dis 25 %

Butts.—Union Drilled Loose Joint dis 60&10 %; " " Wire Fast Joint dis 55 %; " " Acorn Loose Joint dis 60&10 %; Brass Butts dis 30 %; Wrought Table Butts and Back Flaps dis 30&10 %; Wrought Narrow Butts dis 30&10 %

Can Openers—Sprague's dis 50 %; No. 1, Iron Handle $4 00; No. 2, Wood Handle 4 50

Cartridges.—"U. S. Cartridge Co." dis 50&10 %

Chisels.—"Buck Bros.' Shank Goods add 30 @ 22½ %; Socket add 22½ @ 25 %

Churns.—Lightning—

Redheffer patent	3	4	5	6 gall
	per doz $22 00	$27 00	$31 50	$36 00

Coal Hods dis 35 %

Cow Ties—Fancy Japanned, No. 4, 15 in., $8 00; 5, 16 in., $9 00; 6, 17 in., $10 00. Fancy Galvanized, No. 4, 15 in., $11 50; 5, 16 in., $13 00; 6, 17 in., $14 00. Perfection, Jap'd, No. 4, 15 in., $12 00; 5, 16 in., $13 00; 6, 17 in., $14 00. Perfection, Galv'd, No. 4, 15 in., $15 00; 5, 16 in., $16 00; 6, 17 in., $17 00. Morning Glory, Jap'd, No. 4, 15 in., $12 00; 5, 16 in., $13 00; 6, 17 in., $14 00. Morning Glory, Galv'd, No. 4, 15 in., $15 00; No. 5, 16 in., $16 00; No. 6, 17 in., $17 00.

Compasses and Dividers.—Beuis' dis 35 %; P. S. & W. dis 25 %

Cordage.—Manila (usual trade dis.) ₱ lb, 15c; American Tarred Hemp Lath Yarn ₱ lb, 10c

Corn Hooks per doz $2 75

Cow Ties dis 10 %

No. 30, Open Ring,	3	foot,	No. 6,	with Toggle	$3 70	
No. 35,	3	"	No. 6,	" Snap	3 90	
No. 40,	3½	"	No. 5,	" Toggle	4 25	
No. 45,	3½	"	No. 5,	" Snap	4 40	
No. 50,	4	"	No. 4,	" Toggle	4 85	
No. 55,	4	"	No. 4,	" Snap	5 00	
No. 60,	4½	"	No. 3,	" Toggle	5 60	each.
No. 65,	4½	"	No. 3,	" Snap	5 80	

Crow Bars.—Iron. Steel Points ₱ lb, 5½c; "Sweet" Steel Bars ₱ lb 11c; Brown's Steel Bars ₱ lb 10c; K. P. & Co. Extra Drill Steel ₱ lb 15c

Dividers.—Cook's Nickel Plated dis 15 %

Door Springs.—Stimson's Patent.—No. 7, Light Inside doors, $12 00 dis 25 %; No. 8, " outside " $18 00 dis 25 %; Torrey's $4 00

Egg Beaters.—Lightning, Redheffer pat 1 qt. 2 qts.

	per doz	$8 00	$12 00

Emery.—Alden ₱ lb 6½c; Wellington Mills ₱ lb 10c

Files.—Earl Smith & Co.'s English $5 to £ gold; American $5 to £ currency, less 12½ %; Nicholson new net list; " Regular Taper dis 12½&5 %; Stubb's Tapers, genuine, 3 in., $1 50; 3½, $1 62; 4, $1 88; 4½, $2 13; 5, $2 50.

Funnel Irons.—$2 50 2 50 2 50 3 25 per doz; Deep Flange.—$3 50 5, 5½, 6, 7 inch. 3 75 5, 5½, 4 00 5, 5½, 6 inch.

Hammers.—Maydole dis 5 %; M., B. & D., solid cast steel, adze eye, No. 1, $10; 1¼, $7 75; " " " bell face, No. 1, $11; 1¼, $9 75.

Hangers & Rollers.—Novelty dis 30 %; Anti-Friction $1 25 per pair—dis 30 %

Hatchets.—Underhill Edge Tool Co. dis 15 %; C. F. Dowse, warranted Cast Steel—Shingling 0, $4 75; 1, $5 25; 2, $5 75; Claw 1, 5 75; 2, 6 25; Lathing 1, $5 50; Axe Pattern 1, $7 00; 2, 7 50; Broad 0, $5 25; 1, $6 50; 2, $7 50; 3, $9 25; 4, $10 75; 5, $12 25; 6, $14 25.

Hinges.—Strap and T, Stanley Works dis 35&10 %; Plate, Loose and Fast Joint ₱ lb 6c; Wrought Screw Hook ₱ lb 6½c

Lanterns.—Tubular No. 0 $9 50; Guarded. No. 7?, (with kerosene oil and candle burners) 6 25

Lead.—Sheet and Pipe 9c—less 10 %

Locks.—Norwalk Lock Co. dis 45&5 %

Mattocks.—K. P. & Co., axe finish, long cutter $13 00—dis 10 %; Short cutter 12 75—dis 10 %

Meat Cutters.—" Miles's" Challenge dis. 20 %; No. 1, $22 00; 2, $30 00; 3, $40 00.

Metal.—Babbitt, No. 1, 35c; 2, 25c; 3, 16c; 4, 15c ₱ lb

Nails.—10d and larger $3 60

Nail Pullers.—Little Giant—Small per doz., $2 00; Little Giant—Large " 30 00

Padlocks.—Wilcox dis 50&2 %; All Brass, 2¼ inch, 2 keys, job lot $9 00

Paper.—Tar'd Sheathing ₱ lb 4 c; Dry Sheathing " 3¼c; " " "Beaver Brand" Rosin Sized " 4¼c; Tar'd " " " " 3½c; Felt " " " " 4½c

Picks.—K. P. & Co. Axe Finish ₱ doz 5 to 6 $8 50; 6 to 7 $9 00; " " Solid Eyes 5 to 6 $9 00, 6 to 7 $9 50

Pins.—Universal Hat and Coat all wood—2 in. ₱ gross $2 50; 3 in., 3 50; 4 in., 4 50—dis 15 %

Potato Digger.—" Partridge," 6 square tine ₱ doz $12 00; Shumway & Co., 6 round tine ₱ doz 9 00

Pulleys.—Axle 1¼ No. 15, 31c; 1¾ No. 18, 33c; 1¾ No. 28, 42c; 2 No. 29, 49c. Nashua, Bronzed Face 1¼, 80c; 2, 9 c. Steel Axle " " 2, $1 00

Pulley Blocks.—" Best Boston Make" net. Common Strapped Blocks—

	4	5	6	7 inch.
Single,	75c.	85c.	$1 00	$1 13 each.
Double,	$1 00	1 12	1 25	1 60 "

Inside Iron Strapped Blocks—

	5	6	7	8	9	10 inch.
Single,	$1 00	1 13	1 25	2 00	2 25	1 75 each.
Double,	1 88	2 00	2 25	3 63	4 00	5 00 "

Inside Iron Strapped Blocks, with Patent Roller Bushings—

	5	6	7	8	9	10 inch.
Single,	$1 25	1 50	1 65	2 50	2 65	3 50 each.
Double,	2 50	3 00	3 38	4 63	5 00	6 50 "

Plated Ware.—Rogers bros. new list dis 40&10 %

Plumb & Levels.—" Davis" Pat. Adjustable—No. 1, Iron and Wood Center Levels dis 50 %; No. 2, First Quality Levels dis 60&10 %; No. 3, Iron Pocket dis 35 %; No. 4, Level and Plumb Glasses dis 60&10 %; No. 5, Iron Pocket Levels, per square and straight edge dis 50&10 %; No. 6, Improved Iron Bench Planes dis 20&10 %

Pocket Knives.—Com. Cutlery Co. new net list; American Shear Co. dis 33¼ %

Rail Barn Door.—For Novelty and Anti-Friction Hangers per foot 7c., dis 30 %

Rivets.—Black dis 25 %; Carriage, oval head, Nos. 3, 4, 5, 6, 7, 8, 13 13 14 14 15 16c ₱ lb net

Rubber Moldings.—" Harmon's" dis 10 %; No. 2, for Windows per foot, 5c; No. 3, for Doors per foot, 10c; No. 4, " per foot, 12c

Sad Irons.—Bliss & Drake ₱ lb 3¾c

Sand Paper—0 to 2, $4 25; 2 to 3, $4 75 dis 10 %

Saws.—*Hand and Panel*—Wheeler, Madden & Clemson's, same list as "Disston's" dis. 15 %; Disston's dis. 12½ %; *Cross Cut*—Wheeler, Madden & Clemson X Cuts per ft., 31c; " " " "Star" X Cuts. " 60c; " " " Champion X Cut. " 50c; " " " One Man X Cut. each, $2 25; Boynton's genuine Lightning X Cut per ft., 60c; " " " One Man X Cut. each, $2 25; Circular—Wheeler, Madden & Clemson's dis. 25 %; Mill— " " " dis. 25 %

Screws.—American Screw Co. revised list dis 52½ %; Aiken's dis 50&10 %

Scythe Stones.—"Willoughby Lake," first quality ₱ gross $6 50; " " second quality " 3 00

Shovels.—O. Ames new list dis 12½ %; M. B. & D. new list dis 12½ %; Snow, Malleable Iron Tip, D Handle—Agents for New England $6 50; Snow, Malleable Iron Tip, long Handle—Agents for New England 5 50

Sifters.—Coal, Rice, &c. $12 00

Spading Forks.—M. & E. dis 25 %

Stone Pickers.—" Partridge," original ₱ doz $15 00

Tools.—Aiken's Pattern, 20 in set; Parr's $6 00 per doz

Traps.—Oneida dis 30 %; Blake's dis 30 %

Vises.—K. P. & Co.'s Solid Box. Blacksmith's ₱ lb 13c; Parker's Parallel dis 10 %; Backus dis 25 %; "Howards." Parallel dis 20 %

Wardrobe Hooks.—Wire to drive ₱ gross $1 00

Weather Strips.—" Harmon's" per doz $5, dis 10 %

Weights.—Window Weights ₱ lb 2½c

Wedges—Axe ₱ doz 38c

Wire.—Eureka, in spools, No. 28 to 40 assorted ₱ gross $3 50

Wire Netting.—Clinton Wire Cloth Co., Green, Drab or Black ₱ ft 5½c

Wrenches.—Genuine Wrenches, G. A. Coes dis 40&5 %; Walton dis 50 %

Wringers.—Novelty and Universal, Tub No. 2, Less than 2 doz, $64 00; 2 doz or more, 62 00; Bench A, less than 2 doz $82 00; 2 doz or more $80 00; " B, " " 90 00 " " 88 00; " C, " " 108 00 " " 105 00; Eureka per doz $58 00; Withington, Cooley & Co.—Hoes, Rakes, Forks, &c dis 33⅓ %

Boston Metal Market.

(Corrected by Fuller, Dana & Fitz.)

Tin Plates.—₱ box

I. C. Char. 10x14	@ $11 50		
I. C. Coke 10x14	9 00		
Char. Roof. IC, 14x20, 10 75			
Coke " IC, 14x20, 10 25			

Pig Tin.—₱ lb

Banca	31c	Straits	29c
English	24½c		

Zinc.—Sheet ₱ lb 11c

Iron.—Sheet Iron, Russia ₱ 17½; Sheet Iron, English " 8; " " American Refined " 5¾c; " " Galvanized " 10c; Plate Iron " 8¾c; Swedish and Norway Bar Iron, gold ₱ ton, $130 00; " " " Shapes, gold " 125 00; Norway Nail Rods, first quality, gold " 145 00; " " second " " 125 00; Best Refined Bar Iron 60 00; The "Burden Best" Iron 100 00; American Pig Iron, Foundry, No. 1, x " 29 00; " " No. 2, x " 27 00; " " Gray Forge " 24 00; Scotch Pig Iron ₱ ton 36 50 @ 40 50; Wrought Scrap Iron 35 00

Steel.—₱ lb

Eng. Tool	18c	German	10c
American Tool	14¾c	Spring	8 c
" Mach	10c	Tire	6¾c
Passemer	7¾c	Sleigh Shoe	4¾c
		Toe Calk	6 c

Copper.—₱ lb

Sheathing	33c	Bolt	30c
Ingot	24c		

Lead.—₱ lb

Pig	6¾c	Sheet & Pipe	8 c

Spelter ₱ lb 8c

Antimony ₱ lb

ST. LOUIS.

Corrected weekly by Semple, Birge & Co.

Apple Parers.—Conqueror ₱ doz, $8 50; Hudson's Rotary " 9 00

Axes.—Wm. Manns, Red Warrior ₱ doz $11 50; Wm. Manns, W. Stewart's " 11 00; " Handled " ₱5 extra; " Double Bitted " 21 50; H. L. B. & Co.'s, L. & Co. " 14 50; " Pioneer " 12 00; " James & Co. " 11 00; Hunt's " 12 00

Axles.—Kritch & Crane Mfg. Co.'s—Patent Taper Axles, Swelled Taper, Concord and Red Jacket Axles dis 12½ %; Common Axles, 1¼ inch and upward ₱ lb 5¾c; " less than 1¼ inch " 5¾c

Bellows.—Best St. Louis make 6c ₱ in. dis 15 %

Bells.—Troy, Church, School and Farm Bells ₱ lb 42c

Bolts.—Arms, Bell & Co.'s Carriage and Tire dis 75 %; Arms, Bell & Co.'s Machine dis 20 %

Butts.—Western Butt Co.'s—Narrow Fast Joint dis 35 %; Broad Fast Joint dis 50 %; " Loose " dis 65 %; Reversible dis 40 %; " Japanned and Silver Tipped dis 25 %; Loose Joint " Acorn " dis 60 %

Corn Cutters or Hooks.—Solid Steel ₱ doz $4 00

Corn Knives.—Dunn Edge Tool Co.'s Clip " 5 75; Seymour Mfg. Co.'s Solid Steel Back " 5 00

Corn Shellers.—Sandwich Mfg. Co.'s—Power Shellers dis 10 %; Hand Shellers dis 10 %

Cotton Gins.—Dubois Patent Special rates

Crow Bars.—Steel Pointed ₱ lb 7c

Drag Saw Machines.—Culver's Pon Drag Saw dis 10 %; Robinson's Patent Sweepstakes Drag Saw dis 10 %

Fanning Mills.—Nash & Catt's dis 15

Feed Cutters.—Burdick's National dis 15 %; Baldwin's American dis 15 %; Sanford No. 1, $12 00; No. 2, $8 75 net

Forks and Hoes.—Auburn Mfg. Co.'s Hay and Manure Forks dis 33⅓ %; " " Handled Hoes dis 25⅓ %

Grinding Mills.—French Burr Mills net list; Challenge Feed Mills dis 40 %; Sedgebeer's Nonpareil Mills dis 10 %; Osage Corn and Cob Mill dis 20 %

Hammers.—Masons' Hammers ₱ lb 20c; Smiths' Hand 25c

Handles.—No. 1 Fork, Hoe and Rake dis 20 %; No. 2 Fork, Hoe and Rake dis 40 %

Harrow Teeth.—1 inch iron ₱ lb 4½c; ⅞ and ¾ inch iron " 5¾c; Barbed or Headed " ¾c extra

Hay and Cotton Presses.—Dederick's Railroad dis %; " Perpetual net

Hay Knives.—Dunn Edge Tool Co.'s ₱ doz $15 00—dis 15&5 %; Lightning (Weymouth's Patent) ₱ doz $30 00

Horse Hay Fork.—Nellis' Harpoon dis 25 %

Horse Nails.—National Patent Pointed 20c rates; National Patent Pointed, extra finished 25c "

Horse Powers.—Pitts or Carey's Patent dis 10 %; Wheeler's Railway dis 10 %; Sandwich Lever dis 10 %

Horse Rasps.—Heller Bros. dis 45 %

Horse Shoes.—Rhode Island (Perkin's Pattern) ₱ keg, $6 50; Mule " 7 50; Trotting Shoes " 9 00

Mattocks and Grub Hoes.—Klein, Logan & Co.'s Mattocks ₱ doz $14 75 @ 15 75; Grub Hoes, oval eye " 10 75 @ 12 00

Nails.—Wheeling $3 50 rates

Picks.—Klein, Logan & Co.'s Railroad and Clay ₱ doz $10 50 @ 11 75; Klein, Logan & Co.'s Coal " 8 00 @ 9 00; " " " Pick " 12 00; " " " Stone " 15 00; " " " Tamping " 17 50

Plows.—Avery's Cast and Steel dis 15 %; Collins Cast Cast Steel new list net; Pekin Steel new list net

Post Hole Augers.—Clark's Patent—No. 1, ₱ doz, $27; No. 2, $30; No. 3, $32 dis 20%

Rakes.—Paddock's Premium Sulky $90 00 net; St. Louis Revolving 14 tooth 5 50 net; " " 16 " 6 00 net; " Hand Hay Rake dis 10 %

Reaper Knives and Sections.—Geo. Barnes & Co.'s Knives dis 20&5 %; " " Sections dis 25 %

Road Scrapers.—Steel dis 25 %; Cast Iron dis 10&2½ %

Sad Irons.—Monitor Brand, Silver Polished ₱ lb 24c

Sash Weights.—Standard Solid Eyes ₱ lb 3¾ c

Saws.—Hubbard, Lippincott, Bakewell & Co.'s dis 10; Branch, Crooks & Co.'s dis 15

Scythes.—Dunn Edge Tool Co.'s new list dis 25

Scythe Stones.—No. 1 Ind'n Pond ₱ gr's, $7 00; Extra Indian Pond " 7 50; Premium " 10 50; Diamond Grit " 18 00 } dis 25

Shovels and Spades.—Myers & Armor dis 15 %; Grain Scoops, (Pat. Corrugated straps) M. & A. dis 15 %; " " T. Rowland's dis 15 %

Sledges.—Smith's Stone or Coal Sledges—Steel Face Polished ₱ lb, 15c; Solid Cast Steel " 25c

Spaths and Cradles.—Seymour Mfg. Co.'s dis 20 %

Springs.—Cleveland Spring Co.'s—Carriage and Express dis 12½ %; Blue Seat Springs dis 12½ %

Thimble Skeins.—Railroad & Skein Co.'s dis 60 %

Vises.—Solid Box ₱ lb 16c; Wilson Mfg. Co.'s dis 15 %

Wheelbarrows.—Railroad & Garden new list net

Wrenches.—Coes' Genuine dis 20&5 %; Coes' Pattern dis 50&5

Wringers.—Crown ₱ doz $60 00

Wagons.—Whitewater Farm Wagons—Thimble Skein No. 3, $80; 3½, $84; 3½, $85; Iron Axle No. 1½, $95; 1¾, $99; 1¾, $95

St. Louis Metal Market.

(Corrected Weekly by Messrs. R. Sellew & Co.)

Tin Plate.

IC, 10x14, Char	12 00	IX, continuous, 30 in. x 200 ft.	
IC, 10x14, "	14 50	IC, 10x14, best	
IC, 12x12, "	12 50	Coke	$11 00
IX, 12x12, "	15 00	IC, 10x14, good	
IC, 14x20, "	13 00	Coke	10 50
IC, 14x20, Tern.	11 50	IC, 10x20	16 50
IX, 14x20, "	14 00	IC, 14x20	11 00
IC, 20x28, "	28 00	IC, 14x20, Coke Lead	8 50
IX, 20x28, "	27 00	IC, 10x14, punch'd for Safes	10 0
IC, continuous 20 in. x 200 ft.			

Block Tin.

Large Pigs Straits	30c	Bars	32
Small " English	31c		

Sheet Zinc.

Casks	₱ lb 10½c	Sheet	₱ lb 11c

Solder.

No. 1, Refined, in bars or plate	17c
No. 2, " " "	16c
Pig Lead	7½c

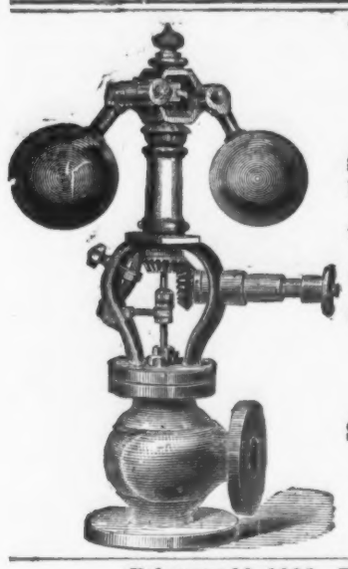
Sheet Copper—18 to 100 lbs. Sheets 30x60 32c; 14 to 16 lbs., Sheets 30x60 32c; 10 to 12 lbs., " and 30x72 35c; 6 to 9 lbs., " 38c; Tinned, 14 and 16 oz. 14x48 31c; Planished, 14 and 16 oz. 14x48 37c; " No. 7, 8 and 9 39c; Copper Bottoms 43c

Sheet Iron.—

	Com'n.	Sm'th.	Char'l.	Jun'ta
No. 16 to 20	4¾c	5¾c	7¾c	9¾c
No. 22 to 24	4¾c	5¾c	7¾c	9¾c
No. 26	5 c	6 c	8 c	9¾c
No. 27	5¼c	6¼c	8¼c	10c

Galvanized Iron dis 30 %; **Iron Rivets** dis 25 %; **Iron Wire** dis 25 %; **Coppered Market Wire** dis 30 %; **Copper Rivets and Burs** dis 25 %

Russia Iron.—Nos. 9, 10, 11 and 12, ₱ lb 30c; No. 1 stained, ₱ lb 18c; Imitation Russia, ₱ lb 15c; **Retinned Stamped Ware** dis 20



TO ALL WHO USE STEAM-POWER!

We will put our Governor on any Engine, and guarantee it to prove itself superior to all others.

If, after a fair trial, it does not, we will take it off at our own expense.

Shive Governor Co

BETHLEHEM, PA.

ALSO,

SHIVE'S PATENT WATCHMAN'S CLOCK AND DETECTOR.

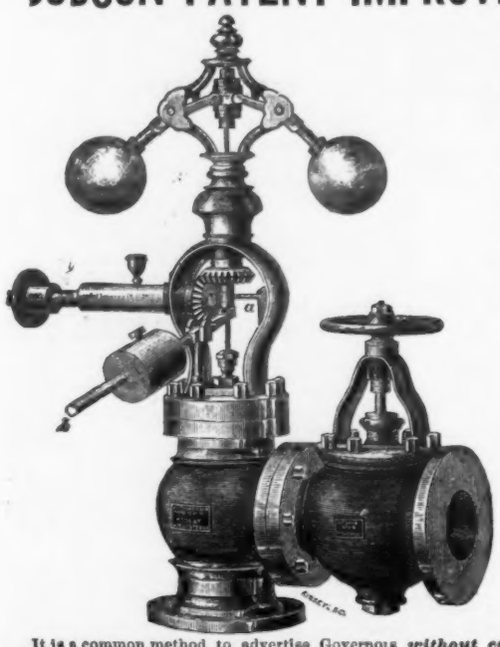
The Best and Cheapest Watcher of the Watchman made

PRICE ONLY $15.

Circulars sent free.

February 10, 1875. **REDUCED PRICE LIST OF THE**

JUDSON PATENT IMPROVED GOVERNORS.



☞ When Governors are ordered, be particular and say Governor with Stop Valve, or without Stop Valve; and either Black, Finished or Portable, as you may require, and with or without Lever Attachment.

For dimensions and other particulars send for Illustrated List.

Capacity of Valve or Diameter of Steam Pipe in Inches.	Price, Black.	Price, Bright Finish.	Price, Portable.	Price of Lever Attachment for altering speed.	Price of Stop Valve.
¾	18·00	20·00	17·00	..	..
⅞	20·00	22·00	19·00	..	..
1	24·00	27·00	22·00	2·00	5·25
1¼	29·00	32·00	27·00	2·25	6·64
1½	34·00	38·00	31·00	2·50	8·50
2	41·00	46·00	38·00	2·75	11·50
2¼	47·00	54·00	..	3·25	16·00
2½	50·00	57·00	47·00	3·50	17·00
2¾	55·00	62·00		3·75	19·00
3	62·00	70·00		4·25	22·00
3½	71·00	80·00		4·50	27·00
4	81·00	92·00		5·00	32·00
4½	91·00	103·00		5·50	37·00
5	102·00	114·00		6·00	42·00
5½	116·00	129·00		6·50	48·00
6	134·00	148·00		7·00	55·00
7	160·00	176·00		8·00	69·00
8	199·00	219·00		9·00	83·00
9	230·00	255·00		10·00	..

Larger Portable made than 2½ in.

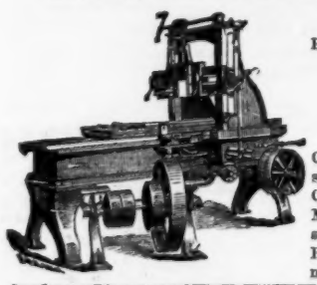
No Charge for Boxing & Cartage.

It is a common method to advertise Governors *without cost*, unless satisfactory to the customer, and then charge *High Prices* for doing what any good Governor will do. Various Governors inferior to the "Judson" are sold in this way, operating well enough for three months, to insure collection of the pay, but becoming useless after a year's wear—their construction lacking durability. The Judson Governor is guaranteed to be not only the best Regulator of Steam Engines, but also the most durable Governor made. Parties in buying other Governors should stipulate that their durability be guaranteed, and should also take care that they do not, for much inferior Governors, pay higher prices than those shown in the above list. We guarantee the Judson Governor will do all any other Governor can do, and in Accuracy and Durability—the main essentials—we guarantee it shall do more.

JUNIUS JUDSON & SON, Rochester, N. Y.

The Pratt & Whitney Co.,

Hartford, Conn.,



Have constantly on hand and making

Drop Hammers

Of recently Improved Construction. Pony Trip Hammers, Blacksmiths' Sheaves, Broaching and Stamping Presses, Iron Shop Cranes, Machinists' Tools, Gun and Sewing Machine Machinery. Make to order Gray and Charcoal Iron Castings of all styles and sizes not exceeding 15 tons weight, (making patterns if desired). Furnish Clamp Pulleys of light patterns, cut gears in a superior manner, &c., &c.

BLAKE'S PATENT STONE & ORE BREAKER.

New Pattern with Important Improvements & Abundant Strength

For reducing to fragments all kinds of hard and brittle substances, such as STONE for making the most perfect McADAM ROADS, and for making the best CONCRETE. It breaks stone at trifling cost for BALLASTING RAILROADS It is extensively in use in MINING operations, for crushing

IRON, COPPER, ZINC, SILVER, GOLD, and other ORES.

Also for crushing **Quartz, Flint, Emery, Corundum, Feldspar, Coal, Barytes, Manganese, Phosphate Rock, Plaster, Soapstone, &c.**

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Persons visiting New York, can be shown a crusher in operation at 127 Elm St

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THORNE, DeHAVEN & CO.

21st Street, above Market,

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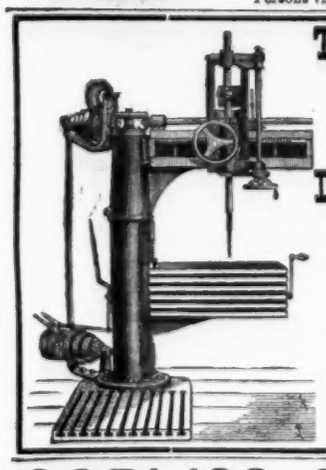

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PORTABLE,
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MULTIPLE,
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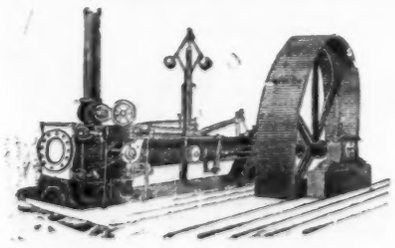
HORIZONTAL,
SPECIAL,

CORLISS STEAM ENGINE.

The Best in the World for Economy in Fuel and Cost of Running.



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Special attention given to Boring Ports and Cylinders.

A Written Guarantee given with our Pumps.

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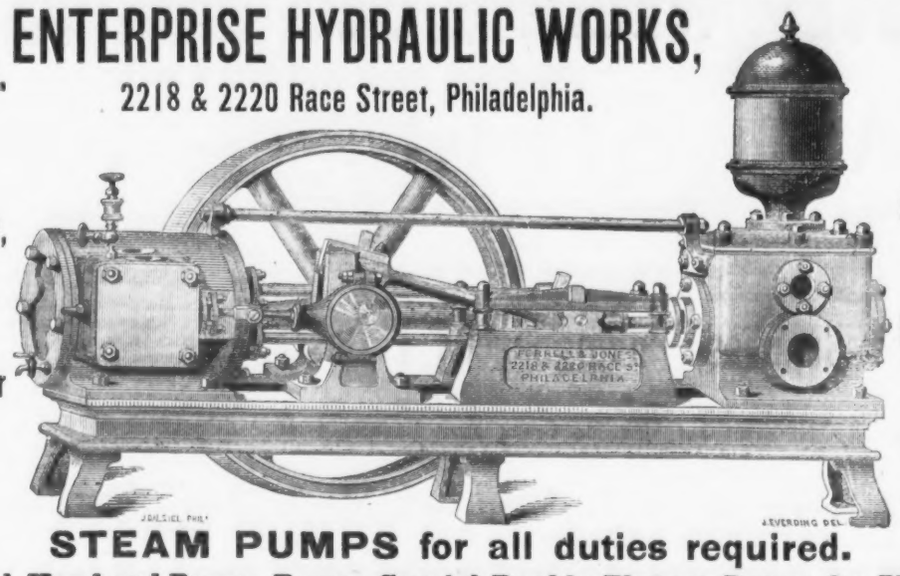
2218 & 2220 Race Street, Philadelphia.

Fan Blowers. Piston Blowers, "FOULDS" Patent Water Elevator.



Our Fly Wheel STEAM PUMP is admirable For Fire Purposes.

STEAM PUMPS for all duties required.

Centrifugal, Hand and Power Pumps, Special Double Plunger Pumps for Mining Purposes. Boiler Feed and Tank Pumps.

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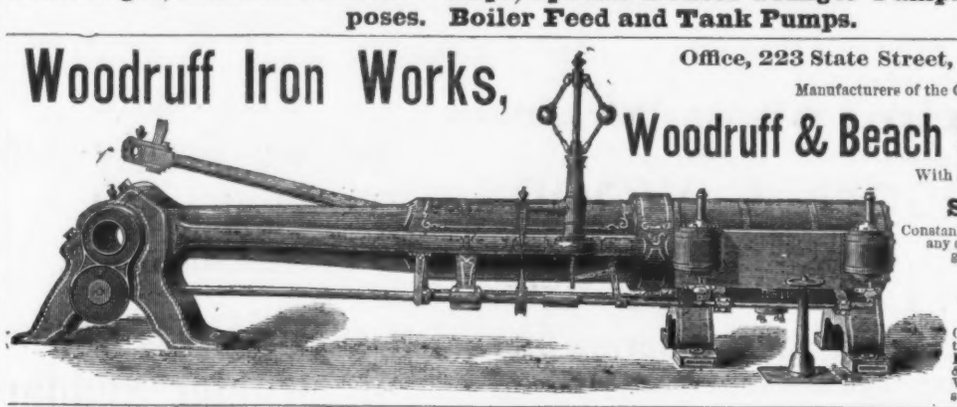

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Steam Boilers

Constantly on hand and made to order any size or style. Special attention given to the manufacture of

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And all kinds of Machinery,

CASTINGS

Of any size or style. Direct all letters to **The Woodruff Iron Works, Hartford, Conn.**, as the Woodruff & Beach Iron Works and firm of Woodruff & Beach are both dissolved.

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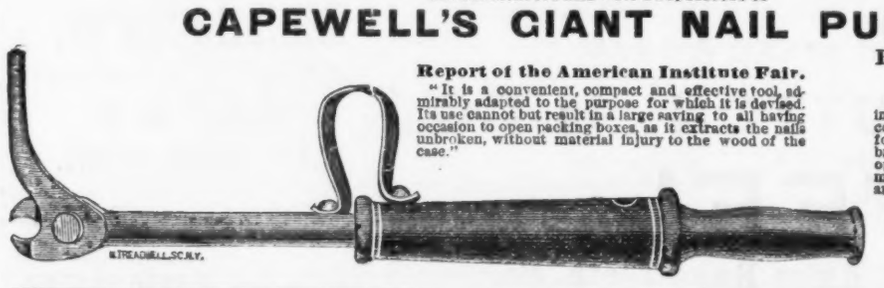
CAPEWELL'S GIANT NAIL PULLER.



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"It is a convenient, compact and effective tool, admirably adapted to the purpose for which it is devised. Its use cannot but result in a large saving to all having occasion to open packing boxes, as it extracts the nails unbroken, without material injury to the wood of the case."

Reasons why you should Use the Nail Puller.

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KNOWLES STEAM PUMP WORKS,

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WAREHOUSES:

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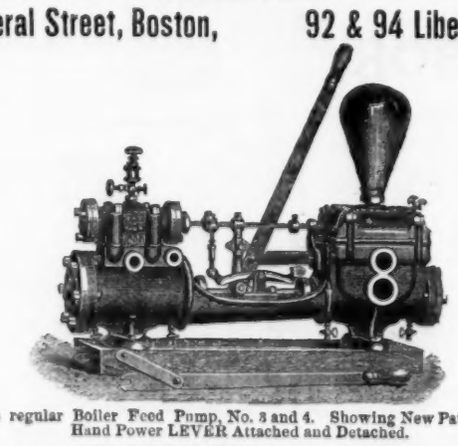

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FIRE PUMPS, a specialty.

Mining Pumps (both Double Acting Plunger, and Piston Pattern,) which we guarantee to run absolutely noiseless on any lift from 100 to 600 ft., at a single lift, a specialty. Pumps for every possible duty. Prices as low as any, and our workmanship and material altogether the Best.

Every machine furnished under a complete guarantee.

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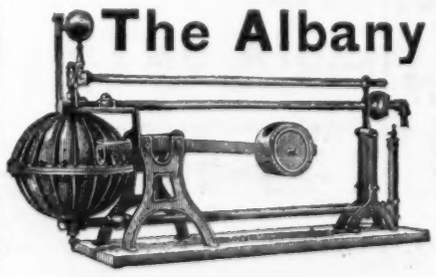

This Trap automatically drains the water of condensation from *Heating Coils*, and returns the same to the Boiler *whether* the Coils are *above or below* the water level in Boiler, thus doing away with pumps and other mechanical devices for such purposes. Apply to

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OF VARIOUS GRADES.

XXX	Metal Nickel Hardening	50 cts. ℔ lb	
AX	Metal Nickel Hardening	45 cts. ℔ lb	
X	Metal Copper Hardening	40 cts. ℔ lb	
A	" "	35 cts. ℔ lb	
B	" " "	30 cts. ℔ lb	
C	"	25 cts. ℔ lb	
D, E, F	These metals are alloys of lead, with a large percentage of tin, antimony and copper, according to price.		20 cts. 18 cts. 16 cts.
G, H	These metals are the ordinary low priced Babbitt alloys, used where there is not much wear on the machinery, and where economy is required.		14 cts. 12 cts.

BRASS CASTINGS, 21 to 35c ℔ lb. | **INGOT BRASS,** 19 to 30c ℔ lb. | **BRASS TURNINGS AND OLD METALS WANTED.**

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MADE EXCLUSIVELY FROM

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CAST SPRING AND PLOW STEEL.
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RE-ROLLED NORWAY SHAPES.

NORWAY NAIL RODS ROLLED AND SLIT FROM SUPERIOR BRANDS.

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Nellis' Patent Cotton Tie.

This Tie meet the approval of every Planter and Factor that has given it a trial. A single trial at the Press or Compress affirms its strength, merits and advantages over any in the market. We are prepared to supply the trade at market prices. Orders and Sample Orders respectfully solicited.

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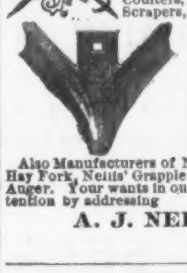

Which we use in the manufacture of Moldboards, Walking and Riding Cultivator Shovel, Oval and Flat Reversible Points, Cultivator Teeth, Rolling Coulters, Cotton Sweeps, Scrapers, Bull Tongues, Pea Vine Cutters, Whiffletree Clips, Steel and Iron Harrow Teeth, &c.; in fact, everything in the Agricultural Steel lines, which we bevel, temper and finish to suit all kinds of soil. Implement makers and Farmers can govern themselves in making selections by the imprint thereon of our Trade Mark.

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Kerosene, Oil & Candle.

New, Cheap, Strong, Durable. Takes the No. 0 TUBULAR GLOBE. Excellent Burner.

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Security, Durability, Convenience.

IMPROVED SELF-LOCKING

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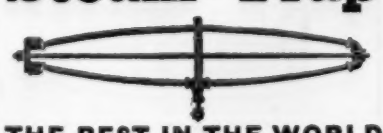
Steam Trap



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Carriage Bolts made from Best Square Iron, a Specialty.

AMERICAN LOCK CO., Cazenovia, N. Y.

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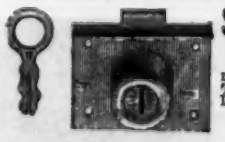
Store Door, Drawer and Pad Locks and N't Latches

Containing 30 or more Springless Tumblers affording great security.



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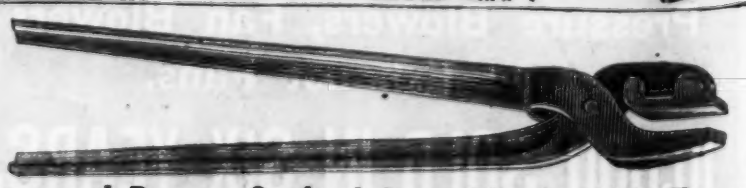

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FOR HOLDING IRREGULAR & TAPERED PIECES OF IRON, &c.

The Swivel Jaw swings so as to take any taper or parallel within the capacity of the tongs. Send for Circulars and Prices to

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